AN INVESTIGATION OF HEAD START TEACHERS' ATTITUDES TOWARD ADOPTING EVIDENCE-BASED PRACTICES AND THE CLASSROOM ASSESSMENT SCORING SYSTEM

by

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STATEMENT OF DISSERTATION APPROVAL

The following faculty members served as the supervisory committee chair and members for the dissertation of Teresa Jean Mc Gregor Oster. Dates at right indicate the members' approval of the dissertation.

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ABSTRACT

The concurrence of neuroscience research, predictive factors linking preschool quality to subsequent learning, and risk factors compromising developmental outcomes and therefore a child's ability to enter kindergarten with requisite skills have prompted changes in research, policy, and practice. The convergence of factors have resulted in unprecedented accountability measures in Head Start. It is incumbent on Head Start teachers to implement high instructional practices that will lead to improved learning trajectories for *all* children, particularly children at greatest risk for learning challenges. Yet there is a dearth of empirical evidence delineating the specific components of professional development interventions most likely to lead to positive and sustained changes in instructional practices. This study examined the receptivity of Head Start teachers' toward adopting evidence-based practices using the Evidence-based Attitude Scale and attitudes toward the Classroom Assessment Scoring System (CLASS) to determine if relationships existed between Head Start teachers' attitudinal responses and scores on observational measures of teacher quality. Results of this study demonstrated statistically significant correlations between teachers' attitudinal responses to actual CLASS scores. Teachers' perceptions of the usefulness of various instructional interventions used to improve instruction were also investigated. Results indicate receptivity to adopt evidence-based practices and CLASS as well as satisfaction with a variety of interventions by a majority of Head Start teachers in the sample ($N = 305$).

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CHAPTER 1

INTRODUCTION TO THE STUDY

Early childhood education has increasingly been regarded as a viable solution to national education-reform efforts (Halle, Metz, & Martinez-Beck, 2013; Heckman & Masterov, 2007; Wesley & Buysse, 2010b). Neuroscience research established prenatal to age 5 as a critical period of development, predictive of children's subsequent learning and academic success (Bowman, Donovan, & Burns, 2001). Regarding child development, Shonkoff and Phillips (2000) stated the following:

> Virtually every aspect of early human development, from the brain's evolving circuitry to the child's capacity for empathy, is affected by the environments and experiences that are encountered in a cumulative fashion, beginning in the prenatal period and extending throughout the early childhood years. (p. 6)

The extant literature suggests a causal link between the quality of early childhood programming and developmental outcomes for children (Bowman et al., 2001; Burchinal & Cryer, 2003; Buysse, Wesley, Bryant, & Gardner, 1999; Howes, Phillips, & Whitebook, 1992; Kaiser et al., 2010; Tout, Zaslow, & Berry, 2005; Wesley & Buysse, 2010a). High quality preschool experiences increase cognitive, academic, and social outcomes (Burchinal, Howes, & Kontos, 2002; Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; La Paro, Pianta, & Stuhlman, 2004; Shonkoff & Phillips, 2000) and provide valuable protective factors for children deemed at risk for academic difficulties

(Bowman et al., 2001; Peisner-Feinberg et al., 2001). Academic and social gains achieved in preschool persist in subsequent schooling and in life (Ackerman & Barnett, 2007; Bowman et al., 2001; Burchinal & Cryer, 2003; Burchinal et al., 2008; Gormley, Gayer, Phillips, & Dawson, 2005; Snow, Burns, & Griffin, 1998).

Nationally, 74% of 4-year-old children attend some type of preschool (Barnett, Epstein, Friedman, Sansanelli, & Hustedt, 2009). However, the quality of preschool programming varies widely (Bowman et al., 2001; Burchinal et al., 2002; Committee for Economic Development, 2002; Early et al., 2005; Epstein & Barnett, 2012; Peisner-Feinberg et al., 2000, 2001). A majority of preschool programs are considered to be of poor to mediocre quality (Cost, Quality & Child Outcomes Study Team, 1995; Early et al., 2005; LoCasale-Crouch et al., 2007; C. T. Ramey & Ramey, 2010). Disparities in children's social, cognitive, and academic knowledge exist prior to kindergarten entry (Ackerman & Barnett, 2007; Bowman et al., 2001; Burchinal & Cryer, 2003; Howes et al., 1992; Peisner-Feinberg et al., 2001; Pungello et al., 2010; Shonkoff & Phillips, 2000). Children deemed at greatest risk for school difficulties often have less access to preschool and when they do attend, often receive a poorer quality education (Barnett, 2003; Barnett, Hustedt, Hawkinson, & Robin, 2007; Bogard & Takanishi, 2005; Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Neuman, 2008, 2009, 2010).

The concurrence of early childhood neuroscience research, predictive factors that link preschool quality to subsequent learning, and risk factors compromising developmental outcomes and therefore a child's ability to enter kindergarten with requisite skills have prompted changes in research, policy, and practice (Gilliam & Frede, 2012; Halle et al., 2013; Heckman & Masterov, 2007). The convergence of successive factors has resulted in unprecedented accountability measures in the early childhood field

(Administration of Children and Families [ACF], 2013; Gilliam & Frede, 2012; Hustedt, Friedman, & Barnett, 2012). One prominent example of increased accountability was evident in the national Head Start program whereby recently enacted accountability measures were unparalleled (ACF, 2013).

Accountability in Head Start

Head Start, the nation's largest comprehensive preschool program, was founded on the premise that *all* children deserve to begin kindergarten with the necessary health, knowledge, and skills to be successful in school and in life (Child Trends, 2011; Henrich, 2004; Schorr, 2004; Zigler & Styfco, 2004). The federally funded program primarily serves more than 950,000 of the most vulnerable children including those living (a) in poverty, (b) with disabilities, (c) in homelessness, (d) in foster care or nonparental care, (e) in homes in which English is not the primary language spoken, or (e) in rural or impoverished communities with limited resources (Ballantyne, Sanderman, D'Emilio, & McLaughlin, 2008; U.S. Department of Health and Human Services Administration for Children and Families, Office of Planning, Research, and Evaluation [USDHHS], 2010b). Individually or cumulatively, these factors may put children at increased risk for learning difficulties (Bowman et al., 2001; Burchinal et al., 2008; Layzar, Darlington, Murray, Royce, & Snipper 1982; Neuman, 2008, 2010; Shonkoff & Phillips, 2000; Snow et al., 1998). Given the abundance of evidence linking preschool quality with academic achievement, methods to mitigate the effects of risk factors and improve child outcomes has garnered national attention (Ackerman & Barnett, 2007; Bowman et al., 2001; Burchinal, Kainz, & Cai, 2011; Burchinal et al., 2002, 2008; Gormley et al., 2005; Howes et al., 2008; Ludwig & Phillips, 2008; Magnuson et al., 2004; National Institute of Child

Health and Human Development [NICHHD], 2002; C. T. Ramey & Ramey, 2010; Shonkoff & Phillips, 2000; Snow et al., 1998; U.S. Department of Health and Human Services, Administration for Children and Families, Office of Head Start, 2010).

As research continues to emerge, the early childhood field faces numerous challenges to reduce existing inequities between advantaged children and their more vulnerable peers (Barnett, 2010; Gillanders, Iruka, Ritchie, & Cobb, 2012; Karoly, Kilburn, & Cannon, 2005). Policy makers, researchers, and teachers are examining methods to increase preschool access and quality with the overarching goal of improving child outcomes (Howes et al., 2008; Pianta, 2006; Tompkins, Zucker, Justice, & Binici, 2013). For Head Start, increased accountability encompasses observational measures of classroom quality (USDHHS, 2010b).

Classroom Assessment Scoring System

In the 2007 Improving Head Start for School Readiness Act, Congress mandated accountability measures to increase program quality. One requirement delineated in the 2007 Improving Head Start for School Readiness Act is mandatory: ongoing reviews of all Head Start programs using a valid and reliable, research-based observational measure to examine teacher–child interactions (Improving Head Start for School Readiness Act, 2007). To meet this mandate, the Office of Head Start (OHS) selected the preschool Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008) measure. Grounded in developmental theory purporting that interactions between children and adults provide the foundation for children's development and learning, CLASS measures classroom quality by assessing teacher–child and peer interactions (Early et al., 2005; Hamre, Pianta, Mashburn, & Downer, 2007; NICHHD, 2002; Pianta,

La Paro, et al., 2008). Contained in the CLASS are quantifiable measures in the areas of emotional support, classroom organization, and instructional support (see Table 1) using a 7-point scale with 1 and 2 in the low range, 3 to 5 in the midrange, and 6 and 7 in the high range (Hamre & Pianta, 2005; Pianta, La Paro, et al., 2008).

Validated in over 3,000 preschool and elementary classrooms across several large-scale national studies (Early et al., 2005; Hamre et al., 2007; NICHHD, 2002; Pianta et al., 2005), the CLASS measures interactional processes rather than structural aspects such as environments, curricula, or materials (Hamre, Goffin, & Kraft-Sayre, 2009; Hamre & Pianta, 2007). Results across studies demonstrated moderate to high levels of emotional support (see Table 2), moderate levels of classroom organization (see Table 3) and low levels of instructional support (see Table 4; Hamre & Pianta, 2007). Instructional support measures a teacher's instruction and feedback to promote students' higher order thinking skills and cognition, as well as teachers' use of language-stimulation and facilitation techniques (Pianta, La Paro, et al., 2008). Head Start CLASS scores, derived from 2011 federal monitoring reviews, are slightly higher than the national average in all CLASS domains and remain in the low midrange in instructional support (m =3.36; Hamre et al., 2007). Thus, Office of Head Start has focused significant resources to improve classroom quality and increase CLASS scores (ACF, 2013).

Table 1 Overview of CLASS Pre-K Domains and Dimensions.

Emotional support domain	Classroom organization domain	Instructional support domain
Positive climate	Behavior management	Concept development
Negative climate	Productivity	Language modeling
Teacher sensitivity	Instructional learning format	Quality of feedback
Regard for student perspective		

Table 2 National Mean Scores in Emotional Support in Pre-K–3rd and Head Start.

Emotional support domain	National mean all pre-K–3rd grade	2011 national mean Head Start	Standard deviation	Range
Positive climate	4.82	5.28	.95	1.0–7.0
Negative climate	1.26*	1.21*	.59	1.0–7.0
Teacher sensitivity	4.24	4.78	1.01	1.0–7.0
Regard for student perspective	4.06	4.57	.79	1.0–7.0

Note. *negative climate scores in reverse

Table 3 National Mean Scores in Classroom Organization in Pre-K–3rd and Head Start.

Classroom organization domain	National mean all pre-K–3rd grade	2011 national mean Head Start	Standard deviation	Range
Behavior management	4.53	4.92	1.01	1.0–7.0
Productivity	4.03	4.90	.94	1.0–7.0
Instructional learning format	3.44	4.37	1.17	1.0–7.0

Table 4 National Mean Scores in Instructional Support in Pre-K–3rd and Head Start.

Instructional support domain	National mean all pre-K–3rd grade	2011 National mean Head Start	Standard deviation	Range
Concept development	1.66	3.33	.88	1.0–7.0
Quality feedback	1.64	3.32	.92	1.0–7.0
Language modeling	2.67	3.40	.68	1.0–7.0

A significant challenge for Head Start teachers, defined hereafter as inclusive of lead and assistant teachers, is the urgency to improve CLASS scores. The CLASS was initially presented as an optional tool to support teachers' professional development, yet is now being used as a federal monitoring tool for Head Start programs (ACF, 2013).

As part of the 2007 Improving Head Start for School Readiness Act, a designation renewal system delineated minimum CLASS threshold scores Head Start programs must

meet to maintain federal funding; these threshold scores will incrementally increase (ACF, 2013). Established threshold scores were derived from studies that examined threshold effects on child outcomes (Burchinal, Vandergrift, Pianta, & Mashburn, 2010: National Center on Quality Teaching and Learning [NCQTL], 2012). Thus, the challenge is significant for Head Start teachers to perform at ever-increasing levels, measured by the CLASS. These high stakes may be problematic, given research that demonstrated changing teacher–child interactions take time and practice (NCQTL, 2012). Specifically, after intensive CLASS-focused professional development lasting approximately 10 months, CLASS scores increased on average one-half (.50) to one point (1.0) in each of the three CLASS domains (NCQTL, 2012). Yet, the definition of intensive, CLASS-focused professional development remains vague. A synthesis of the implementation science research literature revealed it takes on average 2 to 4 years for new learning to become fully integrated into practice (Fixen, Naoom, Blasé, Friedman, & Wallace, 2005; Metz & Bartley, 2012). Head Start programs are currently being assessed, and while the National Head Start Training and Technical Assistance Network is in place to support programs in strengthening teacher–child interactions (ACF, 2013), some programs will not have sufficient time to make substantial changes in CLASS scores prior to federal-monitoring reviews. The overarching goal of the CLASS is to improve classroom quality; however, with the possible losses so great, it is plausible that Head Start administrators will focus on CLASS scores rather than the process of improving instructional practice (NCQTL, 2011). Thus, it becomes increasingly important to understand fully how teachers view the CLASS and examine intervention methods that are most likely to result in individual and organizational changes needed to implement the CLASS to scale.

Organizational Change

The literature on organizational change suggests transitioning empirical research into changes in practice produced varying levels of effectiveness, yet is becoming increasingly important as policymaker's require evidence of effectiveness in practice (Aarons, 2004; Halle et al., 2013). Across disciplines, stakeholder involvement or commitment emerged as a critical precursor to organizational change, yet no data exist to support any given approach to achieve commitment (Fixen et al., 2005; Rogers, 2002). Other factors critical to organizational change include communication regarding the rationale for change (Rogers, 2002), mobilization of committed stakeholders, and clearly articulated implementation plans (Adelman & Taylor, 2003). Change in any organization may create varying degrees of employee stress (Korunka, Weiss, & Karetta, 1993). Organizational-change research demonstrated employees' stress levels increased when agencies failed to communicate clearly the rationale and subsequent expectations related to changes or innovations (Korunka et al., 1993). In contrast, stress significantly decreased when staff were included in the planning process and provided the knowledge and skills to be successful in the performance implementation of changes (Korunka et al., 1993).

Performance implementation is defined as organizational procedures that are fully integrated such that they become sustainable accepted practice (Fixen et al., 2005). Researchers Denton, Vaughn, and Fletcher (2003) examined reading programs and described factors that influenced the sustainability of high-quality performance implementation, including (a) teacher acceptance and commitment, (b) unequivocal commitment by all staff, (c) professional development for teachers including training and coaching that leads to proficiency, (d) perception of teachers as being practical, useful,

and beneficial to children, and (e) strong administrative support and leadership.

When considering performance implementation of the CLASS, that is, to bring the CLASS to scale, one must assess and understand the status of Head Start teachers' attitudes in each area—commitment, professional development, usefulness of intervention, and leadership—to increase the probability of successful implementation. As previously described, the organizational change research delineates specific factors that increase the probability of performance implementation to scale. However, because Congress mandated the CLASS, many of the initial factors (stakeholder commitment, communication, and planning) were not instituted at the program level. Additionally, because the CLASS was first introduced as a professional development tool and then became a monitoring tool tied to funding criterion, it is plausible the way in which the CLASS measure was implemented may influence teachers' attitudes and beliefs toward the CLASS. Additional research is needed to determine the receptivity and readiness of Head Start teachers to adopt the CLASS, the level of teachers' commitment, and the desired methods of professional-development support to implement the CLASS to scale. To assess these factors, it is important to understand Head Start teachers' attitudes and beliefs.

Teacher Attitudes and Beliefs

Teachers' attitudes and beliefs toward teaching play a crucial role in the quality of classroom interactions and instruction (Hamre, Downer, Jamil, & Pianta, 2012; Maier, Greenfield, & Bulostsky-Shearer, 2013; Pajares, 1992; Richardson, 2003). Attitudes are broadly defined as an individual's feelings toward an object, whereas beliefs include information an individual holds about an object (Maier et al., 2013). Thus, beliefs

represent what a teacher believes to be true, regardless of whether it is accurate (Atwater, 1994; Maier et al., 2013). Attitudes and beliefs are integral (Maier et al., 2013). For example, what a teacher believes to be true about the CLASS may determine how he or she feels about it as a measure of quality.

The early childhood research relating to teachers' attitudes and beliefs is scant and has produced mixed results. Some studies showed correlations between teachers' beliefs and instructional practices (Charlesworth & Burts, 1994; Charlesworth, Burts, & Hernandez, 1992; Kontos & Dunn, 1993; Stipek & Byler, 1997; Wilcox-Herzog, 2002). Some incongruity between stated beliefs and actual practices have also been documented (Charlesworth et al., 1992; McMullen, 1999; Wilcox-Herzog, 2002). Several studies suggested teacher beliefs may be crucial in the development of interventions aimed to change teaching practices (Hamre et al., 2012; Lara-Cinisomo, Fuligini, Daugherty, Howes & Karoly, 2009; Pianta et al., 2005; Stipek & Byler, 2004).

Given the implications of teachers' beliefs in classroom quality, it is important to determine what early childhood teachers believe to be important measures of quality (Lara-Cinisomo et al., 2009). It would be helpful to identify and address Head Start teachers' attitudes and beliefs as a potential means of developing effectual professional-development interventions.

Evidence-based Practice Attitude Scale

Researchers have developed scales to measure practitioner attitudes as a means of assessing readiness for organizational change (Aarons, 2004; Aarons et al., 2010; Stahmer & Aarons, 2009). Of interest to the present study is an attitudinal scale developed to measure mental health practitioners' attitudes toward the adoption of

evidence-based practices (Aarons, 2004). The term evidence-based practice originated in the medical field and quickly expanded into the social sciences and education (Buysse & Wesley, 2006). In the early-childhood field, the term is defined as a decision-making process that integrates the best available scientific research with professional wisdom and values (Buysse & Wesley, 2006). More recently, evidence-based practices have been broadly defined as practices, when implemented correctly, that result in statistically significant favorable outcomes for the beneficiary (Halle et al., 2013).

The Evidence-based Practice Attitude Scale (EBPAS) demonstrates that practitioners' attitudes toward the adoption of evidence-based practices can be reliably measured (Aarons, 2004). The EBPAS (see Table 3) has been generalized to the education field (Stahmer, & Aarons, 2009). Aarons (2004) EBPAS measures four attitude dimensions toward adoption of evidence-based practices:

- Intuitive appeal of evidence-based practices: Measures the level of comfort practitioners feel regarding the implementation of evidence-based practices. Studies have shown practitioners are more comfortable learning from colleagues than from research articles or books; thus, the delivery of the evidence-based practices can influence their intuitive appeal (Aarons, 2004).
- Requirement to implement evidence-based practices: Measures how compliant practitioners are in implementing evidence-based practices when "required" to do so. Research has shown individual and organizational variability to be a factor in the adoption of new or innovative practices (Aarons, 2004).
- Openness to change: Measures individual differences in openness to adopt evidence-based practices. The literature has shown openness to innovation

may be an important precursor to creating a "learning organization." Learning organizations have shown to be responsive and adaptive to new innovations (Aarons, 2004).

- Divergence: Measures the perceived differences between current and new practices. Divergence measures are important in detecting skepticism of academically oriented or research based practices as they relate to existing practices.

The EBPAS was used in the present study to measure Head Start teachers' willingness and attitudes toward adopting evidence-based practices. CLASS dimensions are evidence-based instructional practices consistent with Division of Early Childhood (DEC) recommended practices and National Association for the Education of Young Children (NAEYC) guidelines (Copple & Bredekamp, 2009; Sandall, Hemmeter, Smith, & McLean, 2005). The EBPAS initially provided an accurate measure of teachers' attitudes relating to comfort levels, compliance, openness, and divergence in the implementation of evidence-based practices with no mention of the CLASS. Participants were then asked to rate attitudes specific to the CLASS. In combination, the study determined if relationships exist between attitudes toward evidence-based practices and attitudes towards the CLASS. Further the study examined whether a relationship between teachers' reported attitudes and actual CLASS scores existed.

Need for Further Research

The present study contributes to a small body of evidence examining the link between Head Start teachers' beliefs and attitudes about classroom quality (Hamre et al., 2012). It is among the first study to examine the relationship between teachers'

receptivity and attitudes toward adoption of evidence-based practices defined by the EBPAS and the CLASS and actual CLASS scores. CLASS specific questions measured teachers' attitudes about the CLASS as an accurate measure of instructional quality, teachers' comfort level with the CLASS, and desired professional development supports. Of particular interest is the relationship between Head Start teachers' receptivity to adopting evidence-based practices, CLASS attitudes and actual CLASS scores. The present study could guide future efforts to develop and implement targeted and highly individualized CLASS interventions.

Literature Review

The body of literature pertaining to this research study is reviewed in this chapter. Areas examined are (a) correlates between children's preschool experiences and academic and social achievement, (b) the CLASS tool as a measure of quality, (c) accountability measures in Head Start, (d) professional development as a method of changing instructional practices, and (e) adoption of evidence-based and instructional practices. A summary section delineating how each of these categories relates to the identified research questions will conclude this section.

Effects of High Quality Preschool Programs

Children who begin school ready to learn are more likely to realize their fullest potential; thus the importance of preschool education cannot be overemphasized. High quality sustained learning opportunities beginning as early as possible will increase the likelihood children will be successful in school and in life (Bowman et al., 2001; Burchinal et al., 2012; Committee for Economic Development, 2002; Pungello et al.,

2010; Schultz & Kagan, 2007; Schweinhart et al., 2004; Spiker, Hebbeler, & Barton, 2011). A synthesis of the research confirms children who attend high quality preschool programs display stronger learning trajectories, increased cognitive and language abilities, and improved school readiness skills (Ackerman & Barnett, 2007; Boufford & Jones, 2011; Burchinal et al., 2012; Gormley et al., 2005; Gormley & Phillips, 2008; Karoly et al., 2005; Layzer & Price, 2008; LoCasale-Crouch et al., 2007; Magnuson et al., 2004; Mashburn et al., 2008; NICHHD, 1997; Peisner-Feinberg et al., 2001; Shonkoff & Phillips, 2000; Zill & West, 2001). Specifically, high-quality preschool education improved cognitive functioning and IQ scores and produced significant and persistent long-term increases in reading achievement, socialization, and high school graduation rates, and decreased special-education referrals (Barnett, 1995, 2008; Pianta & McCoy, 1997). Intensive, full-day, year-round programs that begin in infancy and continue through kindergarten produced the strongest cognitive, academic, and reading gains for children (Barnett, 2008; Committee for Economic Development, 2002; C. T. Ramey & Ramey, 2010).

The majority of preschool programs in the United States are considered to be of mediocre quality (Early et al., 2005; C. T. Ramey & Ramey, 2010). In 2007, one-third of programs were identified as being of very low quality (LoCasale-Crouch et al., 2007). Children deemed at greatest risk for school difficulties often have less access to high quality preschool programs (Barnett, Hustedt, Hawkinson, & Robin, 2007; Bogard & Takanishi, 2005; Castro, Espinoza, & Paez, 2011; Garcia & Frede, 2010; Magnuson et al., 2004; Neuman, 2008, 2009, 2012). Moreover, children most at risk for developing learning problems are more likely to be taught by the least prepared teachers (Barnett, 2003; Darling-Hammond, 1999; Gonzalez, Yawkey, & Minaya-Rowe, 2006; National

Council on Quality Teaching, 2004; Neuman, 2008; Peske & Haycock, 2006; U.S. Department of Health and Human Services, 2008). An established and crucial need exists for children deemed at risk to receive high quality preschool services, and Head Start is positioned to provide such services.

Head Start

Head Start is often described as the federal government's premiere early-education program (Zigler & Styfco, 2004). Since 1965, Head Start has provided education, health, dental, nutrition, family, and social services to millions of children and families living in poverty (Child Trends, 2011; Henrich, 2004; Schorr, 2004). Recent changes in Head Start eligibility requirements specify programs primarily target children with the greatest needs: those living in poverty, with family income levels of ≥ 130% of the national poverty level (Improving Head Start for School Readiness Act, 2007). Additional enrollment priorities include no less than 10% of children with disabilities, children living in rural communities, dual language learners, children in foster or nonparental care, and children experiencing homelessness (Improving Head Start for School Readiness Act, 2007; USDHHS, 2010a). In 2012, approximately 13% of children enrolled in Head Start had an identified disability and had an individualized-education plan; it was estimated that approximately 20% more had language deficits that may have placed them 1.5 standard deviations below age-based performance expectations (Center for Law and Social Policy [CLASP], 2012; Kaiser, Hester, & McDuffie, 2001; Kaiser, Roberts, McLeod, 2011).

Limited funding has left millions of Head Start-eligible children without the services needed to begin school on par with their more advantaged peers (Epstein &

Barnett, 2012; Hustedt et al., 2012). The percentage of children served in Head Start varies widely between states with Nevada serving only 4% of eligible 4-year-old children compared to 34% in Mississippi (CLASP, 2010; Epstein & Barnett, 2012). These data are relevant given research showing children from the lowest socioeconomic groups were, at age 4, performing 60% below their more advantaged peers on cognitive tests (Neuman, 2008). Researchers indicated these children will likely struggle to catch up and many will not do so (Juel, Griffith, & Gough, 1986; Snow et al., 1998). With a national poverty rate of nearly 25% among children under the age of 6, and nearly 12% living in extreme poverty (CLASP, 2010) the numbers of children who could benefit from Head Start are sizeable. Researchers also showed that 70% of children born into low socioeconomic status will remain in the same social class throughout their lifetime (Neuman, 2006). By the time children living in poverty enter kindergarten they are already moving along a different educational trajectory than their more advantaged peers (Burchinal et al., 2012; Gormley & Phillips, 2008; Neuman, 2009, 2010; C. T. Ramey & Campbell, 1991; Strickland, 2001; Zill & West, 2001).

Learning difficulties associated with poverty appear early in a child's life and remain both significant and persistent, particularly in the area of language and literacy (Hart & Risely, 1995; Neuman, 2009, 2010). With the exception of children with significant disabilities, researchers have identified poverty and its compounding effects as the most profound risk associated with difficulty in learning to read (Neuman, 2009; Neuman & Celano, 2001; Snow et al., 1998). Increased Head Start or similar program slots are needed to address the millions of children profoundly affected by poverty.

Longitudinal studies show children enrolled in Head Start do make statistically significant academic and social gains (Garces, Thomas, & Currie, 2002; NICHHD, 2002;

Puma et al., 2012). The longer children were enrolled in Head Start, the greater their gains (Puma et al., 2012; Zill & Resnick, 2005). Results described in the final Head Start Impact Study report, a longitudinal study to measure the effectiveness of Head Start, demonstrated at the end of Head Start children showed strong evidence ($p < 0.05$) of improved outcomes in language and literacy, vocabulary, letter-word identification, letter naming, spelling, preacademic skills, and color identification (Puma et al., 2012). Subsequent studies examining the Head Start Impact Study data supported the Puma et al. (2012) findings and suggested additional indirect effects on school readiness, teacher–child relationships, and child behaviors that are maintained into the primary grades for children living in nonparental care (Lipscomb, Pratt, Schmitt, Pears, & Hyoun, 2013). Head Start classroom quality is generally deemed good (Resnick, 2010; Zill et al., 2003).

However, even with the benefit of Head Start attendance, many children continue to enter kindergarten with below average skills in emergent literacy, vocabulary, early reading, early writing, and mathematics (Zill et al., 2003). Several factors may contribute, including children *entering* Head Start are on average one standard deviation below the norm on literacy and mathematics measures (Dickinson, Freiberg, & Barnes, 2011; Dickinson, St. Pierre, & Pettengill, 2004; C. T. Ramey, Ramey, & Lanzi, 2004; Zill, & Resnick, 2005; Zill et al., 2003). This delay puts these children approximately 1 year behind their peers (Layzer & Price, 2008). In addition, children meeting Head Start-eligibility requirements typically have one or more risk factors that may influence learning (ACF, 2013). Specifically, 90% of children enrolled in Head Start live in poverty, approximately 13% have an identified disability or developmental delay (Kaiser et al., 2011), and 38% live in homes where English is not the primary language spoken (USDHHS, 2010a). Although no single risk factor can predict academic difficulties, it is

important to examine correlates that may contribute (Snow et al., 1998). Lamy (2012) suggested if Head Start cannot entirely mitigate poverty, it can fight it.

Advocates of Head Start recommend expanding services to meet the increasing demand of eligible children (Children's Defense Fund, 2002; Greene, 2004; Ripple, Gillian, Chanana, & Zigler, 1999; Zigler & Muenchow, 1992). In contrast, critics of Head Start suggested the program has not done enough to reduce the achievement gap of the children it serves (Baron & Sawhill, 2010; Haskins, 2010; Marrow, 2004; Whitehurst, 2013). Dickinson et al. (2011) suggested a year in Head Start resulted in a mere .09 effect on vocabulary learning compared to children in a control group; no significant effects were found in phonological processing or oral comprehension. Adversaries further argued the gains made in Head Start were not maintained over time; thus the program should be replaced with state-run models (Barnett, 2010; Whitehurst, 2013).

The research on the effectiveness of Head Start has produced mixed reviews. Questions remain as to whether Head Start has done enough to mitigate the compounding effects of poverty (Whitehurst, 2013). Some researchers stressed the logic of considering factors beyond preschool-classroom quality such as the impoverished communities with failing elementary schools in which many poor children have no choice but to reside (Ballantyne et al., 2008; Magnuson et al., 2004; Neuman, 2009, 2010). Data consistently demonstrate an unacceptably large number of children are entering kindergarten without the necessary skills to be successful (Heckman & Masterov, 2007). If one child fails, more needs to be done. As the federal government and some states continue to invest in Head Start with the explicit goal of improving school readiness and life outcomes for children deemed at risk, the field is moving toward stronger and unprecedented accountability measures aimed at measuring program- and classroom-level quality with a

clear objective to mitigate the achievement gap.

Classroom Assessment Scoring System

As findings of The Head Start Impact Study produced mixed reviews, Congress, as part of the 2007 Improving Head Start for School Readiness Act, mandated stronger accountability measures for Head Start programs that are reviewed triennially (ACF, 2013). Specifically, the 2007 Improving Head Start for School Readiness Act states the following:

> The Secretary shall … (F) include as part of the reviews, a valid and reliable research-based observational instrument, implemented by qualified individuals with demonstrated reliability that assess classroom quality, including assessing multiple dimensions of teacher-child interactions that are linked to positive child development and later achievement. (p. 39)

To meet this mandate, the Office of Head Start selected the Preschool CLASS (Pianta, La Paro, et al., 2008). The CLASS measures teacher–child and peer interactions in three domains, emotional support, classroom organization, and instructional support (Pianta, La Paro, et al., 2008).

Unlike other early childhood measurement tools that measure structural or external factors, the CLASS focuses on teacher and child interactions in the context of learning during everyday activities and routines. Structural factors are described as class size, adult to child ratios, curriculum and assessment outcomes, and teachers' credentials (Mashburn et al., 2008; Munro, 2007). Although structural measures of preschool classrooms do provide specific and useful information (Mashburn et al., 2008; NICHHD, 2002), the correlations between structural aspects of the classroom and children's outcomes have proven to be weak (Munro, 2007; Zaslow, Martinez-Beck, Tout, & Halle, 2011; Zaslow, Tout, Halle, & Forry, 2009). In contrast, findings suggest structural

aspects of a classroom coupled with high levels of emotional and instructional interactions better describe the overall quality of children's educational experiences and are more likely to lead to better outcomes for children, particularly for children identified as being at-risk for learning difficulties (Hamre et al., 2009; Hamre & Pianta, 2005, 2007; Mashburn et al., 2008).

Some researchers asserted the interactional components measured by the CLASS when applied at a high level can mitigate the achievement gap (Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008; Hamre et al., 2009, p. 26). Munro (2007) stated, "The greatest opportunity for learning lies in the moments of teacher–child interaction when the teacher crafts learning experiences that stretch children just beyond their current skill level. Unfortunately, such moments are rare" (p. 47); rare because the empirical evidence from the CLASS data do not show consistently high levels of teacher–child interactions, particularly in the area of instructional support (Hamre & Pianta, 2007; Pianta, Hamre, & Downer, 2011).

The CLASS tool measures 11 dimensions using a 7-point Likert-type rating scale with 1, 2 in the low range, 3, 4, 5 in the midrange, and 6, 7 in the high range. Each dimension includes specific indicators and behavioral markers to guide observers in determining a score for each dimension during the observation process (Pianta, La Paro, et al., 2008). Reliable observers conduct CLASS observations during four 20-minute cycles through the day. Trained observers show relatively high interrater score reliability (range: .78–.96) and moderately high internal-consistency reliability across dimensions (range: .79–.91; Hamre et al., 2007). The observer's goal is to capture the child's typical experiences on the observation day. A variety of classroom activities and routines including large- and small-group instruction, play activities, mealtimes, and transitions

are observed to provide an overall assessment of the classroom. Each observation cycle is followed by 10 minutes of coding by the observer (Pianta, La Paro, et al., 2008).

CLASS scores are derived from the behavior of all adults, including lead and assistant teachers in the classroom during each observation cycle. In classrooms with multiple adults, the observer focuses on the adult most actively involved with the children during the observation cycle. Observations may include more than one adult, depending on the interactions during the four-cycle observation period (Pianta, La Paro, et al., 2008). Following all observation cycles, the dimension scores are aggregated into a composite dimension score and further aggregated into domain scores. According to protocol, scores are not typically shared with teachers so as not to define a teacher as a number; rather the observation experience is meant to form a catalyst for professional-development opportunities (Pianta, La Paro, et al., 2008).

To become a reliable CLASS observer requires 2 days of rigorous training followed by successful completion of five online reliability tests. The reliability test involves observing five video segments and scoring each of the dimensions within one point of the master coders. Master coders are a group of early-childhood professionals from a wide variety of backgrounds including classroom teachers, special-education instructors, and clinical, educational, and developmental psychologists (Pianta, La Paro, et al., 2008). Master coders complete an arduous training process and have extensive experience using the CLASS tool (Pianta, La Paro, et al., 2008). Master coders worked in teams of three to five, watching numerous video segments. Upon completion of video viewing, each master coder assigned codes independently; then the group met as a team to establish a consensus score. Consensus scores were subsequently reviewed by the larger group of master coders to confirm accuracy. To pass the reliability test and become

a reliable CLASS observer an individual must score ≥ 80% on the aggregate of scores for the five observed video segments *and* score at least two of the five in one of the master codes in *each* dimension. Therefore, a score of ≥ 80% would still not ensure an observer is reliable unless they demonstrate competency in correctly scoring each of the 10 dimensions in a minimum of three video segments (Pianta, La Paro, et al., 2008). Annual recertification following the same procedure is required to maintain reliability status.

CLASS and its precursor, the Classroom Observation System, have been used in several large scale studies involving more than 3,000 preschool classrooms in numerous early childhood settings including Head Start, state Pre-K, and child care, thereby making it the most extensively used preschool-observation tool (Clifford et al., 2005; Early et al., 2005; NICHHD, 2002, 2003, 2005, 2006). The reliability of each of the three CLASS domains was examined across the major studies (Clifford et al., 2005; Early et al., 2005; Early, Barbarin, et al., 2006; National Center for Early Development, 2002; NICHHD, 2002, 2003, 2005, 2006). Using a three-factor measurement model, with each factor representing a CLASS domain, Cronbach's alpha was used to measure internal consistency and demonstrated acceptable levels across all data sets. The emotional-support domain indicated a range of $r\times\times$ = .77–.89, Classroom organization indicated a range of $r\times\times$ = .62–.89, and instructional support demonstrated a range of $r\times\times$ = .66–.86 (Hamre et al., 2007). Cumulatively these data show a high level of internal consistency for the CLASS scale in all three domains (see Table 5).

CLASS validity was established using various indices of fit: chi-square (*df*), root mean square error of approximation, goodness-of-fit index, comparative-fit index, and the Tucker–Lewis Index across all three studies (Hamre et al., 2007). Using a three-factor model, the results show a range of × / *df* = 63.7–284.4*;* a root mean square error of

Table 5 Reliability of CLASS in Pre-K–5th

Emotional support domain	Range of Cronbach's α
Emotional support domain	.78–.89
Classroom organization domain	.62–.89
Instructional support domain	.66–.86
Indices of fit	**Range of scores**
RMSEA*	.08–.18
GFI	.86–.99
CFI	.88–.97
TLI	.78–.94

Note. RMSEA = root mean square error of approximation; GFI = goodness-of-fit index; CFI = comparative-fit index; TLI = Tucker–Lewis Index.

approximation range of .12–.18; a goodness-of-fit index range of .86–.98; a comparative-fit index range of .88–.97, and a Tucker–Lewis Index range of .78–.94 (Hamre et al., 2007; see Table 5). Note that similar studies examining one- or two-factor measurement models produced mixed measures of internal consistency (Hamre et al., 2007).

A significant amount of CLASS research has focused on the correlation between teacher–child interactions and student achievement (Early et al., 2005; Hamre & Pianta, 2007; Howes et al., 2008; Mashburn et al., 2008, NICHHD, 2006; Pianta et al., 2005). Numerous longitudinal studies have demonstrated the sustainability of the gains made in preschool as children move through elementary school and beyond (Burchinal et al., 2008; NICHHD, 2006). Additionally, because of the increased emphasis on the use of quality outcome measures to improve early childhood classroom quality, a 2011 comparative analysis examined whether the Early Childhood Environment Rating Scale or the CLASS was more or less predictive of child outcomes (Burchinal et al., 2011). Correlations were found between both measures and child outcomes suggested the

CLASS tool was reliable in predicting child outcomes in particular domains (Burchinal et al., 2011).

Accountability Measures in Head Start

Included as part of the 2007 Improving Head Start for School Readiness Act were additional accountability measures requiring programs to meet specific criterion to maintain funding. Specifically the Act states the following:

> A system for designation renewal that integrates the recommendations of the expert panel convened under paragraph (2) to determine if a Head Start program is delivering a high quality and comprehensive Head Start program that meets the educational, heath, nutritional, and social needs of the children and families it serves … based on (b) program reviews conducted under section 641A(c) … (d) classroom quality as measured under 641A(c)(2)(F). (p. 24)

After a lengthy comment period, a Notice of Proposed Rulemaking was issued in 2011 that identified the conditions that would trigger a designation renewal (ACF, 2013). The system of designation renewal determines which programs must compete for ongoing funding (ACF, 2013). This is a change from previous protocols allowing programs to maintain funding unless they were found deficient (ACF, 2013). Based on the Notice of Proposed Rulemaking (ACF, 2013), one or more of the following deficiencies will trigger a designation renewal:

- Failure to establish school-readiness goals
- Failure to meet minimum CLASS threshold scores
- Revocation of a license to operate a center or program (childcare license)
- Suspension from the program
- Debarment from receiving federal or state funds or disqualification from the Child and Adult Care Food Program

- One or more material weaknesses
- Risk for failing to function as a going concern

Two circumstances require a Head Start program to compete for funding because of low CLASS scores. First, they must compete if the program's composite CLASS scores in any one domain fall below the threshold scores, which are currently 4.0 for emotional support, 3.0 for classroom organization, and 2.0 for instructional support (NCQTL, 2012). Second, they must compete if a program falls in the lowest 10% of CLASS scores in a given year based on the aggregate of national program scores (ACF, 2013). The national average CLASS scores for programs reviewed in 2011 were emotional support, 5.90; classroom organization, 5.45; and instructional support, 2.98. In 2013, these scores changed to emotional support, 5.99, classroom organization 5.63, and instructional support 2.72 (NCQTL, 2014). The national decrease in instructional support scores have been debated with some in the field observing scores decrease as observers become more familiar with the tool, that is, observers become more critical. This seems incongruent with a tool that has been deemed valid and reliable and observers who must pass annual recertification to ensure reliability. In contrast, any program scoring 6.0 in all three domains is automatically protected from having to compete for funding, as the program would be deemed to be of high quality, as measured by the CLASS (ACF, 2013). These threshold scores will gradually increase (NCQTL, 2012).

The CLASS protocol recommends not sharing scores with teachers because the tool was designed to support professional development and quality improvement (Pianta, La Paro, et al., 2008). The rationale is the potential for scores to become the focus of the teachers rather than the intended outcome of improving teacher–child interactions

(NCQTL, 2012). However, scores are and will remain paramount in part because of the role of CLASS scores in the designation renewal system. In 2013, CLASS scores are being tracked by program administrators and training and technical-assistance specialists, and reported to regional offices around the country as a means of measuring and monitoring program quality (ACF, 2013).

The mandates to measure the Head Start program quality are unparalleled. The possible losses are significant with the designation renewal system, increasing CLASS threshold scores, and a call for quantifiable school readiness outcomes for children and families in every Head Start program nationally (ACF, 2013). To meet the demand, OHS has designed a multifaceted system of state based training and technical assistance and national center supports for programs (ACF, 2013). Although few would argue higher quality is needed in early childhood programs, some question the use of a professional development tool being used for monitoring. The success or failure of programs will ultimately be determined by the actions of Head Start staff.

Effects of Accountability Measures on Teachers

The increased accountability measures in Head Start, and in particular the CLASS, places significant pressure on Head Start teachers. Head Start teachers are expected, at a minimum, to meet CLASS threshold scores, and programs deemed of low quality—in the bottom 10% nationally—will have to again compete for existing funding or lose funding, even if CLASS threshold scores were met (ACF, 2013). Although the CLASS scores are aggregated across the program, resulting in one composite score for each domain, during a monitoring review only a sample of randomly selected classrooms are observed (ACF, 2013). Not surprisingly, teachers have expressed varying levels of apprehension and

anxiety related to the uncertainty of being observed and scored using the CLASS (T. Oster, personal communication, November 15, 2012). The possibility their CLASS scores might cause their program and community to lose funding weighs heavily on them. Most Head Start administrators have an added expectation teachers will show continual improvement in CLASS scores because CLASS threshold scores will gradually increase as part of the Head Start Designation Renewal System (ACF, 2013). This expectation can be challenging, given research that demonstrated changing preschool and Head Start teachers' interactions with children takes time and practice (NCQTL, 2012). Specifically, research demonstrated a .50 to 1.0 change in CLASS scores after intensive, CLASS-focused professional development (NCQTL, 2012). Thus, CLASS-improvement goals must be based on realistic expectations and backed by intensive, ongoing professional development (NCQTL, 2012). The definition of intensive, CLASS-focused professional development has not been clearly defined. Several intervention programs, developed by researchers, showed promise in supporting teachers in improving teacher–child interactions, as measured by the CLASS (Gillanders et al., 2012; Pianta, Mashburn, Downer, Hamre, and Justice, 2008). Specifically, Pianta, Mashburn, et al. (2008) developed a web-mediated professional-development system of training and consultation for preschool teachers working with children living in poverty called "My Teaching Partner" that showed modest yet significant increases in some CLASS domains over 12 months of intervention. In 2013, these interventions were only available for purchase and a majority of the Head Start training and technical-assistance specialists, those individuals supporting Head Start programs, had no access to the intervention materials.

At a time when the possible losses are great for Head Start programs, they are receiving a wide array of supports developed by training and technical-assistance

specialists without assurances the evidence-based approaches will help improve CLASS scores. With the assistance of the National Center for Quality Teaching and Learning (NCQTL), a national center designed to support Head Start programs, state based training and technical-assistance specialists are examining evidence-based practices as part of the delivery of high-quality professional development that will improve the frequency and quality of teacher's interactions with children and increase classroom quality (NCQTL, 2012; Snyder et al., 2012).

Professional Development

The fields of early childhood, general, and special education have undergone several philosophical shifts in the past 3 decades, from academically oriented preschools in the 1970s to child initiated play-based learning in the 1980s, to a semistructured balance of child- and teacher-directed learning in the 1990s, to the 2013 recommended practice of focused, intentional, data and goal-driven outcomes-based learning (Bredekamp, 1987; Bredekamp & Copple, 1997; Bredekamp & Shepard, 1989; Division of Early Childhood [DEC], 2009; Hemmeter, 2000; National Association for the Education of Young Children [NAEYC], 1991, 2003; Sandall, Hemmeter, Smith, & McLean, 2005). Authors Powell and Diamond (2011) described this shift from a *readiness perspective* to an *explicit-instruction perspective*. The readiness perspective is founded on the role of the teacher as a facilitator of learning; a pedagogical perspective in which many current early childhood teachers were trained and have practiced for years (Powell & Diamond, 2011). Explicit instruction, which is more teacher directed, has proven to be an effective teaching strategy, particularly in improving language and literacy skills (Copple & Bredekamp, 2009; Dickinson, 2002; Neuman, Copple, & Bredekamp, 2000).

Some teachers believed explicit instruction was too rigid and contradicted what they consider to be developmentally appropriate practices (Lara-Cinisomo, Fuligini, Daugherty, Howes, & Karoly, 2009; Powell & Diamond, 2011). It is generally agreed among researchers, children's learning is enhanced through thoughtfully planned daily routines and activities, rich with learning opportunities, rather than contrived, teacher-directed situations (Hemmeter, 2000; Horn, Lieber, Li, Sandall, & Schwartz, 2000; Sandall et al., 2002). The challenge thus becomes bridging the gap between evidence-based practices with instructional practices (DEC, 2009; Halle, Whittaker, & Anderson, 2010; Klinger, Boardman, & McMaster, 2013; Maxwell, Field, & Clifford, 2005; Odom, 2005; Pianta et al., 2005; Powell & Diamond, 2011; Sandall et al., 2005).

In an effort to standardize the field, large, national, early childhood organizations partnered to develop joint position papers on recommended practices, including the Council for Exceptional Children DEC, NAEYC, and specialists in state departments of education (DEC, 2009; NAEYC, 2003). Despite recommendations, some teachers are not accepting the more rigorous and explicit approach to teaching and learning outlined in the guidelines. Several contributing factors may influence teachers' pedagogical philosophies. First, reports established the average early childhood teacher is in her late 50s (Herzenberg, Price, & Bradley, 2005; Ryan & Whitebook, 2012). It is plausible the typical teacher may have received formal training when child directed, experiential learning was promoted (Bredekamp & Copple, 1997; Bredekamp & Shepard, 1989; Chang, Early & Winton, 2005; Cochran-Smith & Zeichner, 2005), and therefore may hold different views on what constitutes "good" or "developmentally appropriate practice." This becomes a factor when many of the existing measures of teacher quality include a classroom observation component (Bryant, 2010; Bryant, Burchinal, & Zaslow,

2011; Bryant, Clifford, & Peisner, 1991; Pianta et al., 2007). Second, some researchers suggested the single most important variable affecting child outcomes remains the classroom teacher, specifically teachers' self-efficacy about instructional practices and a willingness to change (Hamre, Downer, Jamil, & Pianta, 2012; Hamre & Pianta, 2007). If this is true, any professional development interventions must begin with an understanding of teachers' attitudes and openness to change.

Early childhood research on effective professional development lags behind practice (S. L. Ramey & Ramey, 2008; Ryan & Whitebook, 2012; Winton, 2010). Programs are moving forward in creating professional development systems without a thorough understanding of what components of professional development are most likely to result in changing teachers' instructional practices or isolating essential and nonessential components needed to impact instructional changes (Hamre et al., 2012). The field continues to lack a defined perspective linking research-based practices with professional practices and vice versa (Kamil, 2010). "Very little rigorous research has been available to inform policy about the most effective ways to provide professional development for current and future early childhood educators" (Kamil, 2010, p. 1).

When describing professional development in the early childhood field, researchers often pointed to a system that is "inconsistent, fragmented, and chaotic" (Bowman et al., 2001, p. 276) or "nonexistent" (Winton, 2010, p. 113). Others suggested the existing professional development system is inadequate in preparing teachers with the necessary skills and knowledge needed to be effectual in today's classrooms (Early & Winton, 2001; Hyson et al., 2011; Kamil, 2010; Pianta, Hamre, & Downer, 2011; Ryan & Whitebook, 2012; Winton, 2010; Zaslow, Tout, Halle, Vick Whittaker, & Lavelle, 2010). The current state of early-childhood professional development was summarized in

a conceptual paper by Sheridan, Edwards, Marvin, and Knoche (2009):

> The early childhood field is at a place where professional development practices and craft knowledge require a larger and firmer platform of theoretical and empirical expertise in order to guide the planning and implementation of the ambitious kinds of school and child care reforms that are demanded in the current era of services expansion and accountability. Indeed, the field is acquiring a body of findings about the effects of various forms, levels, and organizations of professional development on early childhood educators' knowledge base and skill sets (e.g., finding about the outcomes of different trainings, coaching, consultation, and other models of staff support). However, we need to know more about the dynamic and transactional teaching and learning processes underlying these effects as they function in real-world early childhood settings. (p. 378)

One reason suggested for the lag in early-childhood-specific professional development research has been a focus on the content teachers were asked to implement rather than on how teachers were prepared to provide content (Zaslow et al., 2010). There are two kinds of professional development—"how to implement a program and how to become a thoughtful, professional educator"—which can be the same, but frequently are different (Kamil, 2010, p. 13). Researchers often focused on teachers' abilities to implement innovative practices with fidelity rather than whether the innovative practices led to sustained changes in instructional practices (Klinger et al., 2013). Further, instructional interventions often ended at the point the research was completed even when interventions led to beneficial findings (Klinger et al., 2013). This shortsightedness highlights a need to move beyond merely delivering content to a more comprehensive approach of professional-development delivery that combines theoretical and content knowledge with practice-based learning and instructional application (Klinger et al., 2013; Snyder et al., 2012; Zaslow et al., 2010).

Early childhood professional development is defined as "facilitated teaching and learning experiences that are transactional and designed to support the acquisition of professional knowledge, skills, and dispositions as well as the application of this

knowledge in practice" (National Professional Development Center on Inclusion, 2008, p. 3). A synthesis of existing early-childhood research examining various forms of professional development revealed four target areas: (a) strengthening the human and social capital of early-childhood educators (e.g., increasing education levels, continuing training, improving teachers' literacy skills, and considering educator psychological well-being); (b) strengthening the effectiveness of institutions or organizations providing professional development (e.g., improving higher education quality, aligning courses, and modifying approaches to include diverse learners); (c) professional development focused on specific child outcomes (e.g., focusing on language and literacy, mathematics, and social and emotional development); and (d) strengthening the overall quality of early-childhood programming (e.g., providing comprehensive curricula and specific professional-development approaches; Zaslow et al., 2010). From each of these identified areas, patterns emerged across areas (Zaslow et al., 2010) that demonstrated professional development was most effective when the following were instituted:

- Training goals were specific (Fukkink & Lont, 2007).
- There was an explicit focus on professional development linking teachers' knowledge and practice (Landry, Swank, Smith, Assel, & Gunnewig, 2006; Neuman & Cunningham, 2009; Neuman, Roskos, Wright, & Lenhart, 2007; Pianta, Mashburn, et al., 2008; Raver et al., 2008).
- Teachers participated jointly (Sheridan et al., 2009; Zaslow et al., 2010).
- The dosage, intensity, and duration of professional development were matched to content coverage (Zaslow et al., 2010).
- Teachers understood how to conduct child assessments and interpret data (Snow & Van Hemel, 2008; Zaslow et al., 2010).

- Professional development was appropriate for the organizational context and aligned with standards of recommended practice (Roskos, Rosemary, & Varner, 2006).

Clearly, research has demonstrated what is *needed* to improve professional development for early childhood teachers. The research base is slowly emerging to better answer lingering questions about common elements needed to effectively evaluate and change teachers' instructional practices (Snyder et al., 2012; Winton, 2010). More information is needed regarding the types of professional-development approaches most likely to result in teachers' adoption of evidence-based practices (Hamre et al., 2012; Peterson, 2013; Peterson, Valk, Baker, Brugger & Hightower, 2010).

One time training events such as workshops or in-service trainings do not produce meaningful changes in preschool teachers' instructional practices (Fixen, Naoom, Blasé, Friedman, & Wallace, 2005; Maxwell et al., 2005; Powell & Diamond, 2011; Snyder et al., 2012; Wayne, Yoon, Zhu, Cronen, & Garret, 2008; Winton, 2010). Despite the evidence, in-service or group-based trainings remain the primary professional-development approach used to instruct preschool teachers in all types of early-childhood programs (Dickinson & Brady, 2006; Powell, Steed, & Diamond, 2010). A 2009 national survey of early-childhood special-education state coordinators indicated workshops were the most frequently used method of training delivery (Bruder, Mogro-Wilson, Stayton, & Dietrich, 2009). Likewise, until the state based National Head Start Training and Technical Assistance network was redesigned in 2010, Head Start relied on in-service-type trainings to educate teachers and to some degree continue to do so (U.S. Government Accountability Office, 2012).

One plausible explanation for the limited early childhood professional

development research agenda may be a lack of effectual evaluation (S. L. Ramey & Ramey, 2008). Programs, including Head Start, have historically relied on superficial methods of evaluating the effectiveness of professional-development delivery, focusing on appeal rather than substantiating change in instructional practice (S. L. Ramey & Ramey, 2008). Teachers participating in professional-development events reported the information provided was not practical for use in classrooms, stating they would prefer to receive training that was more focused on actually applying knowledge; that is, translating the content into specific classroom activities (Justice & Vukelich, 2008). More information is needed to understand teachers' desired delivery of content concurrently with more research guiding the specifics of effectual professional-development delivery. A synthesis of research on adult learning and teachers' learning provided an evidence base for designing effective professional development (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Snyder et al., 2012; Trivette, Dunst, Hamby, & O'Herin, 2009) that includes the following components:

- Extensive and ongoing professional development providing multiple opportunities for practice
- Professional development grounded in practical application that is relevant to the learner
- Ample opportunities for teachers to self-assess their learning against standards, criteria, and feedback from experts such as coaches or consultants
- Professional development aligned with instructional goals, curricula, and learning standards

In summary, intensive, sustained, and individualized methods of professional development provide the most promising approach for changing instructional practices

(Powell & Diamond, 2011; Snyder et al., 2012). Effectual professional development has the potential to increase teachers' content knowledge, skills, and dispositions that may, in turn, lead to changes in instruction and ultimately, improved child outcomes (Desimone, 2009; Klinger et al., 2013). Linking teachers' content knowledge and practices may be the most effectual method of increasing the quality of instruction and outcomes for children (Landry et al., 2006; Neuman & Cunningham, 2009; Pianta, Mashburn, et al., 2008; Raver et al., 2008; Snyder et al., 2012).

Content Knowledge

Content-matter expertise has been positively linked to high-quality instructional practices (Neuman & Cunningham, 2009). Teachers' content-matter expertise is defined as having the content knowledge of the subject being taught as well as expertise on how to teach the subject most effectively (Neuman & Cunningham, 2009). Numerous studies, particularly in the area of early-childhood language and literacy, examined the effects of teacher interventions that resulted in varying levels of improved instructional practices (Dickinson & Caswell, 2007; Dickinson, Darrow, & Tinubu, 2008; Domitrovich, Gest, Gill, Jones, & DeRousie, 2009; Hsieh, Hemmeter, McCollum, & Ostrosky, 2009; Jackson, Larzelere, St. Clair, Fichter, & Egertson, 2006; Justice & Ezell, 2002; Justice, Meier, & Walpole, 2005; Mol, Bus, & deJong, 2009; Neuman, 1999; Powell, Diamond, Bojczyk, & Gerde, 2008; Powell, Diamond, Burchinal, & Koehler, 2010; Sylva et al., 2011; Wasik, Bond, & Hindman, 2006).

Content knowledge, while important, is not sufficient to ensure improved child outcomes (Neuman & Cunningham, 2009). Content must be connected to context to increase the likelihood it will produce instructional changes (Justice, Mashburn, Hamre,

& Pianta, 2008). When considering teacher quality, particularly as it relates to children's gains in language and literacy, there is general agreement in the extant literature that teachers must possess strong content knowledge in evidence-based language and literacy development as well as have the ability to engage children in rich, effective, and meaningful interactions (Dickinson & Brady, 2006; Neuman et al., 2007). "Content matters, and methods that help teachers develop and convey these understandings to children are an important part of the equation for improving children's literacy development" (Neuman & Cunningham, 2009, p. 537).

In sum, teachers' *application* of evidence-based content knowledge in their practice shows the greatest promise for creating measurable changes in instructional practices (Powell & Diamond, 2011). In contrast, some studies demonstrated early childhood teachers lacked both content knowledge and application skills to effectively engage children in meaningful conversations that promote language development (Justice & Ezell, 2002; NICHHD, 2002).

Evidence-based Practices

Just as content knowledge has been identified as an important link to high-quality instructional practice, so too are the abilities of teachers to apply evidence-based practices (Wasik & Hindman, 2011; Wesley & Buysse, 2006). However, the "transfer of evidence-based strategies into effective classroom practices is challenging because excellent teachers require a wealth of conceptual and procedural knowledge about subject matter and student learning" (Wasik & Hindman, 2011, p. 323). Perhaps the most challenging aspect is an assumption that teachers are *willing* to change instructional practices. Specifically, getting teachers to change the way they are used to talking and

interacting with children may prove difficult (Wasik & Hindman, 2011). Prochaska and Velicer (1997) revealed that typically only approximately one in five people are ready to engage in immediate behavioral changes despite many behavioral-change initiatives. Several studies have uncovered teacher resistance to some evidence-based practices requiring instructional change (Dickinson, Darrow, et al., 2008; Hindman & Wasik, 2008; Powell et al., 2008). In a study conducted by Powell et al. (2008), Head Start teachers expressed a common belief about the importance of literacy but differed extensively on approaches to support children's literacy attainment. Similarly, in a national survey of Head Start teachers, researchers Hawken, Johnston, and McDonnell (2005) found that Head Start teachers infrequently provided code-related instruction or support in developing children's phonological awareness. Hindman and Wasik (2008) discovered Head Start teachers typically were not in agreement with code-related instructional practices, even knowing such practices were recommended evidence-based practices. This is consistent with research by Charlesworth, Burts, and Hart (1994) showing a mismatch between some teachers' expressed beliefs about developmentally appropriate instruction and actual practices. Teachers' resistance to change may be based on a combination of training and pedagogical beliefs (Powell & Diamond, 2011).

Of interest to the present study is a focus on teachers' adoption of evidence-based and innovative practices to improve instruction. Innovative practices are generally referenced as new or original. The term evidence-based practice has two definitions in the early-childhood literature (Winton, 2010). Odom (2005) described evidence-based practices as a means of identifying specific practices that have been shown to be effective through research. The second definition focuses on the processes early-childhood practitioners use to make decisions that are grounded in research, experience, policies,

values, and practice (Buysse & Wesley, 2006). The most widely accepted definition is described as a decision-making process that integrates the best available scientific research with professional wisdom and values (Buysse & Wesley, 2006).

The term, evidence-based practice, can be confusing to practitioners and policy makers. Many wonder how a practice is deemed evidence-based (Buysse & Wesley, 2006; Metz, Espiritu, & Moore, 2007). In some cases, the terminology may be unfamiliar to teachers because it is used interchangeably with other terms such as research-based practice or recommended practice in the early-childhood special-education field (DEC, 2009) and developmentally appropriate or best practices in the general-education field (NAEYC, 2003). Researchers Wesley and Buysse (2010b) suggested the confusion exists around the term evidence-based practice because it implies teachers' must recognize and apply an accumulated knowledge of *all* the scientific research on child development while simultaneously considering other sources such as assessment data and practical knowledge when making decisions in their classrooms (Wesley & Buysse, 2010b). This is a lofty and unrealistic goal. They purported evidence-based practice should be viewed as a natural evolution of developmentally appropriate practice reflecting a range of practices that have proven over time to be effective (Wesley & Buysse, 2010a). Other definitions draw on combined disciplines describing evidence-based practices as "applying the best available research evidence in the provisions of health, behavior, and education services to enhance outcomes" (Metz et al., 2007, p. 1). A more precise, albeit less used term is practice-based evidence, which has been described as bridging the research-to-practice gap because it recognizes the contribution of the teacher who uses evidence-based methodologies to examine the quality of the classroom (Metz et al., 2007).

Numerous definitions of evidence-based practices exist. It is generally recognized

that programs and practices based in theory, that have been experimentally tested in rigorous randomized control trials, presented in peer-reviewed journals, and replicated in different settings are viewed as evidence-based (Metz et al., 2007). Based on these criteria, the CLASS can be described as evidence-based. CLASS dimensions are grounded in developmental theory and have been tested, replicated, and published in peer-reviewed journals (Early et al., 2005; Early, Barbarin, et al., 2006; Hamre et al., 2012; Hamre & Pianta, 2005, 2007; Hamre et al., 2007; Mashburn et al., 2008; Pianta et al., 2011; Pianta et al., 2005; Pianta, Belsky, et al., 2008).

Summary

As preschool emerged as a potential solution to decrease or mitigate the achievement gap for children deemed at risk, much attention has focused on school readiness and the quality of programming (Burchinal et al., 2008, 2011; Dickinson et al., 2011; Gilliam & Frede, 2012; Hustedt et al., 2012). School readiness and quality have always been a priority for Head Start (Hulsey et al., 2011). Research has demonstrated Head Start teachers are generally able to adjust and improve instructional practices when provided adequate support, as evidenced in an abundance of successful experimental and quasiexperimental studies (Dickinson & Caswell, 2007; Domitrovich et al., 2009; Justice et al., 2008; Justice & Ezell, 2002; Justice & Vukelich, 2008; Mol et al., 2009; Neuman, 1999; Neuman & Celano, 2001; Neuman & Cunningham, 2009; Neuman & Kamil, 2010; Pianta et al., 2007; Powell, Diamond & Koehler, 2010; Powell, Diamond, Burchinal, et al., 2010; Wasik & Hindman, 2006). Yet data from several studies revealed the early-childhood workforce as a whole is not adequately prepared to effectively teach children the requisite skills to be successful in school (Lim, Maxwell, Able-Boone, & Zimmer,

2009; Neuman & Kamil, 2010; Phillips, Gormley, & Lowenstein, 2009). Not all teachers have the necessary content knowledge, application skills, or dispositions to consistently and effectively implement evidence-based practices (Choy, 2002; Fuligini, Howes, Lara-Cinimoso, & Karoly, 2009).

As the federal government mandates for accountability in Head Start continue to increase, teachers have been called on to improve the quality of classrooms through improved interactions with children that will ultimately result in better outcomes for the children they serve (ACF, 2013). The large-scale implementation of the CLASS as a measure of classroom quality provides new opportunities for Head Start teachers to receive professional-development interventions and supports that will assist them in honing their instructional skills. The growing literature on early-childhood professional development demonstrated promising results when teachers were provided with ongoing, sustained, and highly individualized methods of content knowledge and practical application that served to deepen understanding of the complexities of teaching preschool (Hsieh et al., 2009; Powell & Diamond, 2011; Snyder et al., 2012). Thus, Head Start teachers need targeted professional-development supports to help them achieve high levels of quality instruction. A precursor to developing effectual professional-development systems is a thorough understanding of Head Start teachers' attitudes toward the CLASS and desired professional-development delivery.

This study provided an understanding of Head Start teachers' attitudes toward the adoption of evidence-based practices, attitudes towards the CLASS as a measure of instructional quality, and perceived usefulness of CLASS specific interventions. This study also investigated relationships between teachers' attitudinal responses to actual CLASS scores. This study contributes to the literature base that currently lacks evidence

specific to early childhood teachers' willingness to adopt evidence-based practices and their attitudes toward the CLASS as a reliable measure of classroom quality. If sustained instructional changes and high quality professional development models are expected, it is prudent to link teachers' attitudinal responses and receptivity when developing effectual professional-development models. This study provided a thorough understanding of teachers' attitudes that may serve to acknowledge teachers' professional beliefs and inform future professional development efforts.

Research Questions

This nonexperimental quantitative survey study investigated teachers' demographic variables, openness to adopting evidence-based practices using the EBPAS (Aarons, 2004), and attitudes and preferred interventions related to CLASS (Pianta, Mashburn, et al., 2008). A comparison of teachers' attitudinal responses to actual CLASS scores were also examined. This study answered the following research questions:

1. Is there an association between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and the Evidence-based Attitude Scale (EBPAS) scores?
2. Is there an association between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and the CLASS Attitude Survey (CAS)?
3. Is there an association between Head Start teachers' Evidence-based Attitude Scale (EBPAS) scores and CLASS Attitude Survey (CAS) scores?
4. Is there an association between Head Start teachers' CLASS scores and demographic variables?
5. Are there differences between Head Start teachers' Classroom Assessment

Scoring System (CLASS) scores and demographic variables?

6. Is there an association between Head Start teachers' preferences for CLASS interventions and demographic variables?
7. Are there differences between Head Start teachers' preferences for CLASS interventions and demographic variables?
8. What professional development supports do Head Start teachers' describe as being most useful in improving CLASS scores?

CHAPTER 2

METHODS

The purpose of this nonexperimental study was to investigate teachers' openness toward adopting evidence-based practices, attitudes and preferred support toward the Classroom Assessment Scoring System (Pianta, La Paro, et al., 2008), and to record various demographic variables for comparison to existing measures of classroom quality. A convenience sampling survey was used to gather attitudinal data that was compared to respondents' CLASS scores. This chapter provides a description of the research methods and design, sample, survey instruments, data collection, confidentiality assurances, coding, and data input and analyses.

Research Methods and Design

The current study used a nonexperimental exploratory survey presented on site in seven Head Start programs of varying sizes located in three intermountain states. The author created survey called the CLASS Attitude Survey (CAS) measured and compared demographic variables, teachers' openness and attitudes, and teachers' perceived usefulness of interventions related to the CLASS (Pianta, La Paro, et al., 2008).

The collection of demographic variables included six single-answer questions relating to job title, program options, participants' age, and participants' education levels.

Additionally, three questions asked participants to list the date they received their highest degree and the total number of years they had been teaching in Head Start and in the field of early-childhood education (see Appendix A). The author was interested in determining if demographic variables correlated to attitudinal responses and actual CLASS scores.

To assess teachers' openness to adopting evidence-based practices, the Evidence-based Attitude Scale (EBPAS) was included as part of the survey (Aarons, 2004). The EBPAS is a reliable and valuable instrument designed initially for mental health providers and subsequently generalized to other fields, including education (Aarons, 2004; Aarons et al., 2010). The EBPAS includes 15 questions requiring participants to rate their opinions using a 5-point Likert-type rating scale measuring openness and willingness to adopt evidence-based practices (see Appendix B). The EBPAS has an established factor-loading scoring system that was used to measure responses (see Appendix C).

The CLASS Attitude Scale (CAS) measured teachers' attitudes toward CLASS and usefulness of instructional interventions (See Appendix D). The CAS includes 19 Likert-type scale questions, four single-answer questions, one rank-order question, and two open-ended questions that measured participants' experiences and attitudes toward the implementation of the CLASS (Pianta, La Paro, et al., 2008). Both instruments (the EBPAS and the CAS) were combined into one survey instrument and administered sequentially subsequent to the demographic data collection. The EBPAS preceded the CAS because the EBPAS asked questions that were not tied to a specific instrument or measure, whereas the CAS inquired specifically about the CLASS. Using this sequence, it is possible that the responses collected from the EBPAS minimized potential bias of teachers' attitudes toward the CLASS.

Sample

Data were collected from seven Head Start programs in three intermountain states. Participants included Head Start teaching staff, comprised of lead teachers and assistant teachers, working with children aged 3 to 5 years. For the purpose of the present study, the term "teachers" referred to both lead and assistant teachers. Differentiation between teacher roles—lead or assistant—were not relevant because CLASS scores are a composite of all teaching staff working in a single classroom rather than individual scores (Pianta, La Paro, et al., 2008). However teachers' roles were used as a demographic variable that was compared to survey responses and CLASS scores. Thus, roles were included in the demographic data collection, but were not differentiated in the narrative, unless warranted.

The sample size ($N = 305$) was determined using statistical methods. The estimated population of teachers and assistant teachers in all of the Head Start programs in three intermountain states total approximately 1,252 potential participants (CLASP, 2013). Using a 95% confidence level and a confidence interval of 5, a sample size of 294 participants was needed to generalize to a regional population (Munro, 2005). A total of 305 surveys were obtained to allow for data loss.

Expert Panel

The demographic, EBPAS, and CAS survey questions were combined to appear as one survey called the CLASS Attitude Survey (CAS). A draft of the survey was initially submitted to a national expert panel comprised of three early-childhood specialists for feedback. The panel consisted of experts in the field of early-childhood general and special education with knowledge of the CLASS. Two experts were

professors and one was a Head Start executive director. An e-mail letter addressed to each member of the panel asked members to assess the content, readability, and compatibility of the survey. Additionally, the expert panel reviewed the feasibility of comparing data collected from the EBPAS and the CAS to actual CLASS scores. Expert panel participants' feedback was reviewed and suggestions were added to the CAS survey.

Pilot Study

The EBPAS is a prevalidated instrument used in numerous studies across disciplines with a high Cronbach's alpha ($\alpha = .77$; Aarons, 2004; Aarons et al., 2010). To establish face validity of the author-created CAS survey, a pilot study was conducted in an urban prekindergarten program not participating in the study. Ten participants ($n = 10$) were asked to complete the survey and provide verbal feedback to the researcher on the clarity of questions, ease of completion, time requirements, and general view of the survey experience. Responses were recorded in writing and used in making modifications to the survey.

Survey

The author distributed the CLASS Attitude Survey to all consenting participants. Surveys were distributed during the first 30 minutes of regularly scheduled staff meetings in the winter of 2014. The researcher introduced the survey using a script to ensure consistency (see Appendix E). The rationale for conducting the survey onsite was to increase the response rate.

Participants were first asked to provide demographic data including city and state,

program, center and classroom, job title, program option, age, education level, and the number of years they taught Head Start and in the field of early-childhood education. These data points allowed the author to group teachers' responses from the 7-point Likert-type CAS survey and EBPAS scale responses to demographic characteristics. Additionally, CLASS scores and demographic variables were compared. To maintain confidentiality, participants were asked not to include their name or any other identifying information on the survey. Information such as respondents' state, program, and classroom location were coded prior to data input to protect participants' anonymity.

After completion of demographic data participants completed an adapted version of the EBPAS (Aarons, 2004). Adaptations, approved by the author, Dr. Gregory Aarons, included early-childhood-specific terminology. The adaptations were necessary because the original EBPAS was designed for mental health providers (Aarons, 2004). The EBPAS is deemed a reliable and valid measure of teachers' openness toward adopting evidence-based practices. The first eight items on the scale measured teachers' openness to adopting new, evidence-based practices, whereas the last seven items measured elements that might facilitate or hinder the adoption of evidence-based practices (Aarons, 2004). All questions in the EBPAS probed teachers' perception about the general concept of adopting and implementing new teaching strategies without referencing any particular training program or instrument (Aarons, 2004).

The researcher-designed CAS was successively administered. Nonexperimental survey research using a questionnaire was selected for this study to provide descriptive and relationship data that described teachers' attitudes. The CAS consisted of nine categorical questions, 18 six point Likert-type questions, one rank-order question, two close-ended questions, two qualifier questions describing experiences with CLASS, and

two open-ended questions measuring teachers' descriptions of additional CLASS supports not identified in the survey as well as the level of usefulness of additional supports (see Appendix D). Participants rated rank order, and open-ended questions to describe attitudes toward the CLASS, past experiences with CLASS observations and feedback, and the usefulness and preferences for various professional development interventions.

The combined demographic survey data and subsequent data analyses identified patterns of teachers' views based on demographic characteristics such as differences in teaching experience, education levels, program options, age, and job status. Each demographic question provided information used to compare existing variances in teachers' perceptions of the CLASS and CLASS scores, based on identified demographic differences. Specifically, identified trends among teachers' attitudes were compared with teachers' most current CLASS scores to examine variables that appeared to have an association to CLASS scores. Although causality cannot be assumed, these data provided information about potential trends and relationships between variables.

Data Collection

The CAS posed minimal risk to participants and therefore signed consent was deemed unnecessary by the University of Utah Institutional Review Board. Rather, a consent letter was included with the survey describing the study (see Appendix F). Potential risks and benefits, confidentiality, voluntary exclusion from participating, and contact information were included in the consent latter. The consent letter indicated completion of the survey constituted consent.

The CAS survey and consent letter were placed in a sealable envelope and

distributed to all participants who met the following criteria: (a) a center-based teacher or assistant teacher currently working with children aged 3 to 5 years of age in the Head Start program; and (b) some prior experience with the CLASS that included either training, observations, or general knowledge. The survey was introduced in a large group during a staff meeting. The scripted introduction took approximately 5-minutes and defined the terms evidence-based practices and manualized teaching strategies, provided assurances participation was completely voluntary and anonymous, and encouraged participants not to talk during the survey administration. Participants were also informed they were free to complete the survey privately such as outside of the staff meeting room, should they desire more privacy. It took on average 25 minutes to introduce, complete, and collect the surveys.

To aid in fully completed surveys, participants were instructed, during the scripted introduction, how to complete the survey, specifically how to record answers using a Likert-type scale, rank order, and open-ended questions. Participants were provided an opportunity to ask clarifying questions prior to beginning the survey. After instructions were completed and participants' questions answered, the researcher stood near the doorway of the meeting room to allow additional privacy, yet remained nearby to answer additional questions during the survey process. Upon completion of the survey, all participants, including those who chose to complete the survey outside of the staff-training room, were asked to place their surveys in the envelope provided and seal it. Individuals who chose not to participate were instructed to place a blank survey in the envelope and submit it with the others. The sealed envelopes were placed on a designated table in the room.

Participants were informed verbally during the introduction that a synopsis of the

survey results would be sent to each program director within 6 months, should they be interested in reading the final results. The principal investigator e-mailed a copy of the abstract to each designated program administrator within 3 months of completion of the study. The abstract included a general overview of the study results. No individual results were obvious in the abstract or were otherwise shared.

Confidentiality

Numerous confidentiality measures were embedded in the study design to ensure the preservation of participants' privacy and anonymity. The CAS and envelope were distributed to participants using a coding process whereby once the participant received their envelope, the card containing the code was removed and discarded. Participants' names were not included on the survey and a research assistant unfamiliar with the programs, coded and input the survey data into Statistical Package for the Social Sciences (SPSS) software. A numeric coding process was necessary to connect survey responses to actual CLASS scores. Given CLASS scores are assigned by classrooms and do not identify individuals, a nonintrusive means of connecting responses to the existing CLASS scores provided by the program was needed. A research assistant unfamiliar with the programs coded the CLASS scores and connected the CLASS scores to survey responses using assigned classroom identifiers on each survey. CLASS and survey data analyses were conducted using only codes to further protect participants' confidentiality and anonymity.

Survey Coding, Entry, and Reliability

The process of survey coding included the assignment of a combined eight number and letter code so variables could be examined. The first number identified the participants' state, the second number indicated a code for the program, the third number indicated teaching level (teacher = 1, assistant teacher = 2), the fourth and fifth numbers indicated the assigned numbers or letters associated with the name of the center within the program, and the sixth number or letter indicated the classroom at a given center. Many of the programs surveyed included classrooms at numerous sites and thus it was necessary to distinguish the site and the classroom. Assistance from program administrator's to individualize this portion of the coding was necessary, that is, program administrators provided a list of centers and classroom names as well as related CLASS scores. Data were entered into SPSS and checked by a research assistant for accuracy. Assigned survey codes were matched to classroom CLASS composite scores from each classroom provided by the program's administrators in each of the three CLASS domains, emotional support, classroom organization, and instructional support.

Data Analyses and Methods

The hypotheses of this research and the research questions were designed to explore if associations and differences exist between teachers' demographic data, attitudinal responses, and actual CLASS scores. The proposed research determined which demographic variables revealed a relationship with teachers' CLASS scores. Additionally, the research identified correlates between teachers' responses in and across surveys with CLASS scores. Several levels of data analyses were necessary to answer the eight research questions and are subsequently described in detail.

First, demographic data were tabulated using descriptive statistical analyses. Mean scores, frequency, and standard deviation data were plotted trends in data by cross tabulation between mean scores and demographic data. Because the research model did not have a single independent variable, that is, a single demographic variable impacting multiple dependent variables (EBPAS and CAS scores), a MANOVA analysis was unsuitable. Therefore, parametric analyses using a series of *t*-tests and multiple ANOVA's to measure the significance of variance between the means of various demographic variables (Drew, Hardman, & Hosp, 2008). To examine the relationship between Head Start teachers' CLASS scores and demographic variables, Spearman's correlational analyses were used, as all of the demographic variables had an ordinal level of measurement and not all variable pairs showed a linear relationship (Drew et al., 2008).

Second, the EBPAS provided a composite score using the factor loading described in Aarons' (2004) research. The EBPAS provided five separate scores in each of the four subscales (appeal, requirement, openness, and divergence) plus a composite score. Additionally, EBPAS scores provided data regarding teachers' attitudes toward change that could be compared to the CAS and CLASS scores.

To further examine the relationship between Head Start teachers' responses to the EBPAS (Aarons, 2004) and their responses to the CLASS Attitude Scale (CAS). The CAS was first assessed for reliability through a principal components analysis (PCA; Pallant, 2007). Results of the PCA determined two reliable constructs, which were then compared to the EBPAS variables using a Pearson product-moment correlation. Comparison of responses from the same sample, collected at the same time using two different instruments, further measured the validity of the CAS. A similar approach was employed to examine correlates between Head Start teachers' responses to the CAS and

their individual CLASS scores using a Pearson product-moment correlation when conditions were met.

Descriptive statistics were used to examine which professional development interventions Head Start teachers described as most helpful in improving interactions with children to actual CLASS scores. Means and standard deviations were tabulated and described in further detail in the results section. The final phase was comprised of synthesizing quantitative and thematic analyses of the open-ended questions in the CLASS Attitude Scale (CAS). Themes identified from the analysis helped generate a comprehensive understanding of the emerging trends numerically represented in the quantitative phase.

CHAPTER 3

RESULTS

The purpose of this nonexperimental survey study was to (a) examine Head Start teachers' openness toward adopting evidence-based practices using Aarons (2004) Evidence-based Attitude Scale (EBPAS), (b) assess Head Start teachers' attitudes and experiences toward the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, et al., 2008), (c) determine if attitudinal responses related to observational measures of teacher quality as measured by teachers' CLASS scores, (d) examine whether demographic variables were associated to attitudinal responses and actual CLASS scores, and (e) identify Head Start teachers' preferred professional development interventions to improve instructional practices. The results are presented sequentially, divided into six sections: (a) population and demographics of study participants, (b) instrumentation, (c) descriptive statistics and reliability, (d) principal factor analysis (PCA) on the Classroom Attitude Scale (CAS), (e) inferential analyses and assumptions, and (f) analysis and findings addressing the research questions. SPSS v22.0 (IBM, 2006) was used for all descriptive and inferential analyses. Inferential analyses were tested at the 95% level of significance. The eight research questions follow.

- Research Question 1: Is there an association between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and the Evidence-based

Practice Attitude Scale (EBPAS) scores?

- Research Question 2: Is there an association between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and the CLASS Attitude Survey (CAS)?
- Research Question 3: Is there an association between Head Start teachers' EBPAS and CAS scores?
- Research Question 4: Is there an association between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and demographic variables?
- Research Question 5: Are there differences between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and demographic variables?
- Research Question 6: Is there an association between Head Start teachers' preferences for CLASS interventions and demographic variables?
- Research Question 7: Are there differences between Head Start teachers' preferences for CLASS interventions and demographic variables?
- Research Question 8: What professional development supports do Head Start teachers' describe as most useful in improving CLASS scores?

Population and Demographics of Study Participants

The Head Start programs included in this study varied in size with the smallest serving 51 children and families and the largest serving 1,950 children and families. Programs included two small programs (< 200) serving rural communities; three medium sized programs (200–699) serving a combination of rural and suburban communities; one large program (> 700) serving an urban community, and one very large program (> 1,500) serving a combination of urban, suburban, and rural communities. Two

programs are part of a larger community action agency and one program is part of a school district.

Study participants included 305 teachers and assistant teachers working with 3- to 5-year-old children in seven Head Start programs located in three intermountain states. Sample size ($N = 305$) was determined by estimating the population of teachers and assistant teachers in all Head Start programs in the three selected intermountain states, which totaled approximately 1,252 potential participants (CLASP, 2013). Using a 95% confidence level and a confidence interval of 5, a sample size of 294 participants was needed to generalize to a regional population (Munro, 2005). A total of 305 surveys were obtained to allow for data loss. Thus, the results of this study may be generalizable to the regional area.

Table 6 presents frequencies and percentages for a variety of demographic variables for participating teachers and assistant teachers. Results are similar for teachers and assistant teachers except in the area of educational attainment. Teachers' educational attainment was substantially higher than assistant teachers' educational attainment, with 59.06% of teachers having completed a bachelor's or graduate degree. In contrast, only 14.29% of assistant teachers obtained a bachelor's or graduate degree. For the presentation of the remaining results, "teacher" refers to lead teachers and to assistant teachers.

Instrumentation

Teachers completed a paper survey instrument comprised of demographic questions and items relating to variable constructs from two instruments: (a) the Evidence-Based Practices Attitude Scale (EBPAS; Aarons, 2004), and (b) an author-created survey, the CLASS Attitude Survey (CAS). Results of the EBPAS, CAS, and

Table 6 Frequencies and Percentages of Demographic Variables by Job Title

Variable	Teachers (N = 139)		Asst. teachers (N = 150)	
	Freq.	%	Freq.	%
Age				
18–19 yrs. old	—	—		
20–29 yrs. old	29	20.9	31	20.7
30–39 yrs. old	51	36.7	36	24.0
40–49 yrs. old	31	22.3	44	29.3
50–59 yrs. old	21	15.1	26	17.3
60–69 yrs. old	7	5.0	11	7.3
70 yrs. or older	—	—	—	—
No response	—	—	2	1.3
Current position				
Full time	136	97.8	125	83.3
Part time	3	2.2	24	16.0
Other	—	—	—	—
No response	—	—	1	0.7
Highest level of education				
High school degree or GED	1	0.7	19	12.7
Child development certificate	4	2.9	70	46.7
Associates degree in early childhood education	18	12.9	13	8.7
Associates degree in another field	2	1.4	12	8.0
BS or BA degree in early childhood education	55	39.6	11	7.3
BS or BA degree in another field	49	35.3	21	14.0
Master's degree in early childhood education	8	5.8	1	0.7
Master's degree in another field	2	1.4	1	0.7
PhD or EdD degree in early childhood education	—	—	—	—
PhD or EdD degree in another field	—	—	—	—
No response	—	—	2	1.3
Number of months currently attended by the children				
Year round	13	9.4	16	10.7
Part year	126	90.6	134	89.3
Other	—	—	—	—
No response	—	—	—	—

Table 6 Continued

Variable	Teachers (N = 139) Freq.	%	Asst. teachers (N = 150) Freq.	%
Program option currently attended by the children				
Full day	18	12.9	20	13.3
Double sessions	97	69.8	102	68.0
Other	24	17.3	27	18.0
No response	—	—	1	0.7
Total number of years working for Head Start				
Less than 1 year	18	12.9	21	14.0
1–3 years	30	21.6	33	22.0
4–6 years	30	21.6	33	22.0
7–10 years	24	17.3	26	17.3
11–15 years	22	15.8	18	12.0
16–20 years	8	5.8	14	9.3
20 years	7	5.0	4	2.7
No response	—	—	1	0.7
Total number of years working in the field of early childhood education				
Less than 1 year	3	2.2	7	4.7
1–3 years	16	11.5	26	17.3
4–6 years	21	15.1	17	11.3
7–10 years	34	24.5	33	22.0
11–15 years	29	20.9	20	13.3
16–20 years	16	11.5	22	14.7
Over 20 years	18	12.9	19	12.7
No response	2	1.4	6	4.0

demographic variables were compared to teachers' CLASS scores obtained from program administrators. All CLASS scores were collected during the 6 months prior to survey completion. All CLASS observations were conducted by individuals deemed CLASS reliable; that is, they had completed rigorous training and passed a series of reliability tests, scoring > 80% consistently across all CLASS domains.

The survey response rate was high, averaging 99.7% across all seven programs. No blank surveys were collected so it can be assumed all staff present at staff meetings participated in the study. A total of 10.7% of staff members were absent from the meetings, as indicated by the unclaimed survey envelopes, and did not participate.

A research assistant checked the accuracy of correspondence between the resulting data set and the original survey for all survey items on 63 (20%) randomly selected surveys. The accuracy of correspondence between the survey and the data set was 100%. The research assistant also verified the accuracy of 63 (20%) of the entered CLASS scores, yielding an accuracy of correspondence rate of 98.7%.

Evidence-Based Practices Attitude Scale

The Evidence-Based Practices Attitude Scale (Aarons, 2004) is a 15-item instrument that measures practitioners' attitudes toward adopting evidence-based practices (see Appendix B). After receiving the author's permission, the EBPAS was modified slightly to measure teachers' attitudes toward evidence-based practices. The modifications were necessary because the EBPAS was originally designed for mental health practitioners (Aarons, 2004); thus, the modifications included some minor word changes. For example, "I am willing to try new methods/interventions" was changed to "I am willing to try new teaching strategies." The EBPAS is comprised of four subscales:

(a) EBPAS Requirements, (b) EBPAS Appeal, (c) EBPAS Openness, and (d) EBPAS Divergence, as well as an EBPAS total score (Aarons, 2004).

Items 11 through 13 measured the EBPAS *requirements* subscale. EBPAS requirements measures how teachers respond to organizational rules and regulations (Aarons, 2004). Each of the items of the EBPAS requirements was scored on a 5-point Likert-based scale from 0 = Not at all to 4 = To a very great extent. Average scores of the EBPAS requirements construct for the sample ranged from 0 to 4, with higher scores indicating teachers with less resistance to compliance with organizational practices required by employers (see Table 7).

Items 9, 10, 14, and 15 measure the EBPAS *appeal* subscale. Appeal is a measure of attitudes toward the implementation of evidence-based practices that are often influenced by the source of the information, which generally favors a preference for peer or colleague-derived information (Aarons, 2004). Each item of the EBPAS appeal was scored on a 5-point Likert-based scale from 0 = Not at all to 4 = To a very great extent. Average scores of the EBPAS appeal construct for the sample ranged from 0 to 4 with higher scores indicating teachers find higher levels of appeal with evidence-based practices relayed by peers or colleagues (see Table 8).

Items 1, 2, 4, and 8 measured the EBPAS *openness* subscale. EBPAS Openness measures teachers' levels of openness in adopting evidence-based practices. Each item of EBPAS openness was scored on a 5-point Likert-based scale from 0 = Not at all to 4 = To a very great extent. Average scores of the EBPAS openness construct for the sample ranged from 0 to 4, with higher scores indicating teachers being more responsive and willing to implement new and innovative evidence-based practices (see Table 9).

Items 3, 5, 6, and 7 measured the EBPAS *divergence* subscale. EBPAS

Table 7 Frequencies and Percentage of Responses on the Evidence-Based Practice Attitude Scale Requirement Items (N = 305)

	Statement	Freq.	%
Q11	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it was required by your supervisor?		
	Not at all	1	0.3
	To a slight extent	6	2.0
	To a moderate extent	72	23.6
	To a great extent	120	39.3
	To a very great extent	95	31.1
	No response	11	3.6
Q12	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it was required by your Head Start program?		
	Not at all	—	—
	To a slight extent	4	1.3
	To a moderate extent	55	18.0
	To a great extent	113	37.0
	To a very great extent	122	40.0
	No response	11	3.6
Q13	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it was required by the Office of Head Start?		
	Not at all	1	0.3
	To a slight extent	4	1.3
	To a moderate extent	65	21.3
	To a great extent	107	35.1
	To a very great extent	113	37.0
	No response	15	4.9

Divergence measures teachers' perceived differences from current practices to new, evidence-based practices. Each item of EBPAS divergence was scored on a 5-point Likert-based scale from 0 = Not at all to 4 = To a very great extent. Average scores of the EBPAS divergence construct for the sample ranged from 0 to 4, with higher scores indicating teachers having less skepticism toward implementation of evidence-based practices (see Table 10).

A summary of frequency and percentages of teachers' responses on EBPAS

Table 8 Frequencies and percentage of responses on the Evidence-based Practice Attitude Scale Appeal items ($N = 305$)

Statement	Freq.	%
Q9 If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it seemed appealing?		
Not at all	3	1.0
To a slight extent	9	3.0
To a moderate extent	76	24.9
To a great extent	145	47.5
To a very great extent	61	20.0
No response	11	3.6
Q10 If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it "made sense" to you?		
Not at all	1	0.3
To a slight extent	7	2.3
To a moderate extent	57	18.7
To a great extent	134	43.9
To a very great extent	96	31.5
No response	10	3.3
Q14 If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it was being used by a colleague who was happy with it?		
Not at all	14	4.6
To a slight extent	22	7.2
To a moderate extent	84	27.5
To a great extent	115	37.7
To a very great extent	53	17.4
No response	17	5.6
Q15 If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if you felt you had enough training to use it correctly?		
Not at all	3	1.0
To a slight extent	14	4.6
To a moderate extent	67	22.0
To a great extent	127	41.6
To a very great extent	84	27.5
No response	10	3.3

Table 9 Frequencies and percentage of responses on the Evidence-based Practice Attitude Scale Openness items ($N = 305$)

	Statement	Freq.	%
Q1	I like to use new types of teaching strategies to help my students learn.		
	Not at all	—	—
	To a slight extent	5	1.6
	To a moderate extent	79	25.9
	To a great extent	131	43.0
	To a very great extent	87	28.5
	No response	3	1.0
Q2	I am willing to try new types of teaching strategies even if I have to follow a teaching/training manual.		
	Not at all	2	0.7
	To a slight extent	9	3.0
	To a moderate extent	89	29.2
	To a great extent	139	45.6
	To a very great extent	62	20.3
	No response	4	1.3
Q4	I am willing to use new and different types of teaching strategies developed by researchers.		
	Not at all	1	0.3
	To a slight extent	12	3.9
	To a moderate extent	82	26.9
	To a great extent	143	46.9
	To a very great extent	58	19.0
	No response	9	3.0
Q8	I would try a new teaching strategy even if it were very different than what I am used to doing.		
	Not at all	1	0.3
	To a slight extent	14	4.6
	To a moderate extent	114	37.4
	To a great extent	121	39.7
	To a very great extent	47	15.4
	No response	8	2.6

Table 10 Frequencies and percentage of responses on the four Evidence-based Practice Attitude Scale EBPAS Divergence items (N = 305)

	Statement	Freq.	%
Q3	I know better than academic researchers how to care for my students.		
	Not at all	52	17.0
	To a slight extent	95	31.1
	To a moderate extent	83	27.2
	To a great extent	59	19.3
	To a very great extent	10	3.3
	No response	6	2.0
Q5	Research based teaching strategies are not useful in practice.		
	Not at all	116	38.0
	To a slight extent	86	28.2
	To a moderate extent	62	20.3
	To a great extent	25	8.2
	To a very great extent	4	1.3
	No response	12	3.9
Q6	Teaching experience is more important than using teaching strategies from a manual.		
	Not at all	17	5.6
	To a slight extent	67	22.0
	To a moderate extent	120	39.3
	To a great extent	64	21.0
	To a very great extent	26	8.5
	No response	11	3.6
Q7	I would not use manualized teaching strategies.		
	Not at all	87	28.5
	To a slight extent	93	30.5
	To a moderate extent	71	23.3
	To a great extent	29	9.5
	To a very great extent	6	2.0
	No response	19	6.2

subscales and the total EBPAS scoring (see Table 11) provides information on attitudes toward adopting evidence-based practices. The subscales Requirement and Openness showed the highest positive scores and Divergence the lowest positive scores.

CLASS Attitude Survey

The CLASS Attitude Survey (CAS) is a questionnaire or survey designed by the author (see Appendix D) to measure teachers' attitudes and experiences with the Classroom Assessment Scoring System or CLASS (Pianta, La Paro, et al., 2008). The survey consisted of 26 items: 19 Likert-type scale measures, four single-answer questions, one rank-order question, and two open-ended questions. Question 22 was divided into 10 separate subquestions. Therefore a total of 24 Likert-type scale measures were included in the CAS instrument.

The 24 individual items were included in a principal-components factor analysis (PCA; Pallant, 2007). The PCA resulted in a derivation of two variable constructs: (a) Teachers' attitudes toward the CLASS (CAS ATC) and (b) Teachers' perceived usefulness of CLASS intervention (CAS UCI). The scores for both variable constructs ranged from 1 to 6. The PCA analysis and findings appear later in this chapter.

CAS Attitudes Toward CLASS Construct

A summary of frequency and percentage of response to the Classroom Assessment Scale: Attitudes Toward CLASS (ATC) provided information about teachers' attitudes toward the CLASS (see Table 12). Responses from the CAS showed significant variability between teachers in the 6-point range as noted in the following example. On the CAS Attitudes Toward Class (ATC), approximately 86% of the teachers

Table 11 Frequencies and Percentage of Responses on All 15 EBPAS Items (N = 305)

	Statement	Freq.	%
Q1	I like to use new types of teaching strategies to help my students learn.		
	Not at all	—	—
	To a slight extent	5	1.6
	To a moderate extent	79	25.9
	To a great extent	131	43.0
	To a very great extent	87	28.5
	No response	3	1.0
Q2	I am willing to try new types of teaching strategies even if I have to follow a teaching/training manual.		
	Not at all	2	0.7
	To a slight extent	9	3.0
	To a moderate extent	89	29.2
	To a great extent	139	45.6
	To a very great extent	62	20.3
	No response	4	1.3
Q3	I know better than academic researchers how to care for my students.		
	Not at all	52	17.0
	To a slight extent	95	31.1
	To a moderate extent	83	27.2
	To a great extent	59	19.3
	To a very great extent	10	3.3
	No response	6	2.0
Q4	I am willing to use new and different types of teaching strategies developed by researchers.		
	Not at all	1	0.3
	To a slight extent	12	3.9
	To a moderate extent	82	26.9
	To a great extent	143	46.9
	To a very great extent	58	19.0
	No response	9	3.0
Q5	Research based teaching strategies are not useful in practice.		
	Not at all	116	38.0
	To a slight extent	86	28.2
	To a moderate extent	62	20.3

Table 11 Continued

Statement	Freq.	%
To a great extent	25	8.2
To a very great extent	4	1.3
No response	12	3.9
Q6 Teaching experience is more important than using teaching strategies from a manual.		
Not at all	17	5.6
To a slight extent	67	22.0
To a moderate extent	120	39.3
To a great extent	64	21.0
To a very great extent	26	8.5
No response	11	3.6
Q7 I would not use manualized teaching strategies.		
Not at all	87	28.5
To a slight extent	93	30.5
To a moderate extent	71	23.3
To a great extent	29	9.5
To a very great extent	6	2.0
No response	19	6.2
Q8 I would try a new teaching strategy even if it were very different than what I am used to doing.		
Not at all	1	0.3
To a slight extent	14	4.6
To a moderate extent	114	37.4
To a great extent	121	39.7
To a very great extent	47	15.4
No response	8	2.6
Q9 If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it seemed appealing?		
Not at all	3	1.0
To a slight extent	9	3.0
To a moderate extent	76	24.9
To a great extent	145	47.5
To a very great extent	61	20.0
No response	11	3.6

Table 11 Continued

	Statement	Freq.	%
Q10	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it "made sense" to you?		
	Not at all	1	0.3
	To a slight extent	7	2.3
	To a moderate extent	57	18.7
	To a great extent	134	43.9
	To a very great extent	96	31.5
	No response	10	3.3
Q11	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it was required by your supervisor?		
	Not at all	1	0.3
	To a slight extent	6	2.0
	To a moderate extent	72	23.6
	To a great extent	120	39.3
	To a very great extent	95	31.1
	No response	11	3.6
Q12	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it was required by your Head Start program?		
	Not at all	—	—
	To a slight extent	4	1.3
	To a moderate extent	55	18.0
	To a great extent	113	37.0
	To a very great extent	122	40.0
	No response	11	3.6
Q13	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it was required by the Office of Head Start?		
	Not at all	1	0.3
	To a slight extent	4	1.3
	To a moderate extent	65	21.3
	To a great extent	107	35.1
	To a very great extent	113	37.0
	No response	15	4.9

Table 11 Continued

	Statement	Freq.	%
Q14	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if it was being used by a colleague who was happy with it?		
	Not at all	14	4.6
	To a slight extent	22	7.2
	To a moderate extent	84	27.5
	To a great extent	115	37.7
	To a very great extent	53	17.4
	No response	17	5.6
Q15	If you received training in a teaching strategy of method that was new to you, how likely would you be to adopt it if you felt you had enough training to use it correctly?		
	Not at all	3	1.0
	To a slight extent	14	4.6
	To a moderate extent	67	22.0
	To a great extent	127	41.6
	To a very great extent	84	27.5
	No response	10	3.3

Table 12 Frequencies and Percentage of Responses on Classroom Assessment Scale: Attitudes Toward CLASS (CLASS Attitude Scale Attitudes Toward Class (N = 305)

	Statement	Freq.	%
Q1	Level of comfort you currently feel with CLASS.		
	Extremely uncomfortable	8	2.6
	Uncomfortable	22	7.2
	A little uncomfortable	49	16.1
	A little comfortable	83	27.2
	Comfortable	127	41.6
	Extremely comfortable	10	3.3
	No response	6	2.0
Q2	CLASS accurately measures the quality of my classroom(s)		
	Strongly disagree	6	2.0
	Mostly disagree	30	9.8
	Disagree a little	50	16.4
	Agree a little	93	30.5
	Mostly agree	101	33.1
	Strongly agree	18	5.9
	No response	7	2.3
Q3	CLASS has improved the quality of emotional support I provide my students.		
	Strongly disagree	14	4.6
	Mostly disagree	30	9.8
	Disagree a little	27	8.9
	Agree a little	99	32.5
	Mostly agree	98	32.1
	Strongly agree	30	9.8
	No response	7	2.3
Q4	CLASS has improved the quality of my classroom organization I provide my students.		
	Strongly disagree	11	3.6
	Mostly disagree	40	13.1
	Disagree a little	27	8.9
	Agree a little	94	30.8
	Mostly agree	93	30.5
	Strongly agree	32	10.5
	No response	8	2.6
Q5	CLASS has improved the quality of my instructional support I provide my students.		
	Strongly disagree	5	1.6
	Mostly disagree	19	6.2
	Disagree a little	19	6.2
	Agree a little	91	29.8
	Mostly agree	118	38.7
	Strongly agree	45	14.8
	No response	8	2.6

Table 12 Continued

Statement	Freq.	%
Q6 CLASS has helped me to become a better teacher/assistant teacher.		
Strongly disagree	6	2.0
Mostly disagree	18	5.9
Disagree a little	26	8.5
Agree a little	78	25.6
Mostly agree	110	36.1
Strongly agree	59	19.3
No response	8	2.6
Q7 CLASS has increased the frequency of interactions I have with children in my classroom(s).		
Strongly disagree	9	3.0
Mostly disagree	30	9.8
Disagree a little	29	9.5
Agree a little	82	26.9
Mostly agree	113	37.0
Strongly agree	34	11.1
No response	8	2.6
Q8 CLASS has increased the quality of my interactions I have with children in my classroom(s).		
Strongly disagree	8	2.6
Mostly disagree	21	6.9
Disagree a little	13	4.3
Agree a little	85	27.9
Mostly agree	122	40.0
Strongly agree	48	15.7
No response	8	2.6
Q10 If given the opportunity, I would choose not to use the CLASS.		
Strongly disagree	46	15.1
Mostly disagree	69	22.6
Disagree a little	60	19.7
Agree a little	70	23.0
Mostly agree	34	11.0
Strongly agree	17	5.6
No response	9	3.0
Q12 I prefer to have my supervisor observe me using CLASS.		
Strongly disagree	28	9.2
Mostly disagree	43	14.1
Disagree a little	50	16.4
Agree a little	74	24.3
Mostly agree	57	18.7
Strongly agree	43	14.1
No response	10	3.3

Table 12 Continued

Statement	Freq.	%
Q13 I think it is important to establish professional development goals related to CLASS to improve my teaching.		
Strongly disagree	7	2.3
Mostly disagree	10	3.3
Disagree a little	16	5.2
Agree a little	78	25.6
Mostly agree	125	41.0
Strongly agree	60	19.7
No response	9	3.0
Q18 Describe the type of feedback most typical of the feedback you received overall about your teaching performance based on the CLASS observations.		
Extremely critical	5	1.6
Somewhat critical	11	3.6
A little critical	15	4.9
A little helpful/constructive	49	16.1
Somewhat helpful/constructive	133	43.6
Extremely helpful/constructive	76	24.9
No response	16	5.2

Note. CLASS = Classroom Assessment Scoring System.

agreed and 14% disagreed with the survey item "I think it is important to establish professional development goals related to CLASS to improve my teaching." The highest level of disagreement among the teachers was for the survey item "If given the opportunity, I would choose *not* to use the CLASS"; approximately two-fifths of teachers agreed (39%) and the remaining 61% disagreed, indicating a desire to use CLASS.

Variability was found in the distribution of all items. This variability suggests individual differences in teachers' views on the CAS. Additionally, many questions were posed in different ways to reduce biased responses and results indicated teachers' responded to the questions asked rather than simply checking random boxes.

CAS Usefulness of Interventions Construct

A summary of data from the Classroom Assessment Scale: Usefulness of CLASS Interventions (UCI) provided information about teachers' perceived usefulness of various CLASS interventions and supports (see Table 13). The intervention scored by teachers as most helpful (*extremely helpful, somewhat helpful, or a little helpful*) was for the survey item "Receive a written report after each set of CLASS observations listing what I did well, what I can improve on, and specific strategies for improvement," in which approximately 89% of the teachers indicated some level of helpfulness and 11% indicated varying levels of written reports not being helpful.

The statement that most of the teachers reported would be least helpful was the survey item "Video tape of me implementing CLASS dimensions that I review and discuss with a CLASS coach." Approximately 62% of teachers indicated this as being helpful in contrast to 38% who indicated it would not be helpful. Teachers also reported the type of feedback typically received after CLASS observations was

Table 13 Frequencies and percentages of responses on Classroom Assessment Scale: Usefulness of CLASS Interventions (N = 305)

Statement	Freq.	%
Q22a Provide me with CLASS reading materials that I can read on my own.		
Not at all helpful	17	5.6
Somewhat unhelpful	33	10.8
A little unhelpful	18	5.9
A little helpful	75	24.6
Somewhat helpful	90	29.5
Extremely helpful	62	20.3
No response	10	3.3
Q22b Weekly time to review CLASS videotapes in the domains/dimensions of my choosing.		
Not at all helpful	26	8.5
Somewhat unhelpful	24	7.9
A little unhelpful	25	8.2
A little helpful	82	26.9
Somewhat helpful	80	26.2
Extremely helpful	50	16.4
No response	18	5.9
Q22c Provide me with ongoing scheduled meeting opportunities to discuss/dialogue with my peer(s) about implementing specific CLASS dimensions with time for me to practice implementing in between meetings.		
Not at all helpful	16	5.2
Somewhat unhelpful	16	5.2
A little unhelpful	20	6.6
A little helpful	80	26.2
Somewhat helpful	110	36.1
Extremely helpful	49	16.1
No response	14	4.6
Q22d Ongoing one-on-one coaching about my CLASS observation(s) with specific suggestions on ways to strengthen my teaching in the CLASS dimensions of my choice.		
Not at all helpful	11	3.6
Somewhat unhelpful	4	1.3
A little unhelpful	6	2.0
A little helpful	76	24.9
Somewhat helpful	95	31.1
Extremely helpful	97	31.8
No response	16	5.2

Table 13 Continued

Statement	Freq.	%
Q22e Participate in group CLASS training(s) that provides me with information about how to implement the dimensions in each of the CLASS domains.		
Not at all helpful	6	2.0
Somewhat unhelpful	14	4.6
A little unhelpful	19	6.2
A little helpful	72	23.6
Somewhat helpful	114	37.4
Extremely helpful	66	21.6
No response	14	4.6
Q22f Receive a written report after each set of CLASS observations listing what I did well, what I can improve on, and specific strategies for improvement.		
Not at all helpful	5	1.6
Somewhat unhelpful	5	1.6
A little unhelpful	10	3.3
A little helpful	41	13.4
Somewhat helpful	95	31.1
Extremely helpful	135	44.3
No response	14	4.6
Q22g Videotape of me implementing CLASS dimensions that I can review privately.		
Not at all helpful	40	13.1
Somewhat unhelpful	18	5.9
A little unhelpful	33	10.8
A little helpful	76	24.9
Somewhat helpful	87	28.5
Extremely helpful	30	9.8
No response	21	6.9
Q22h Videotape of me implementing CLASS dimensions that I review and discuss with a CLASS coach.		
Not at all helpful	37	12.1
Somewhat unhelpful	22	7.2
A little unhelpful	38	12.5
A little helpful	62	20.3
Somewhat helpful	84	27.5
Extremely helpful	43	14.1
No response	19	6.2
Q22i My supervisor would visit my classroom and demonstrate/model for me specific teaching strategies related to the CLASS dimensions so I can see it being done.		
Not at all helpful	14	4.6
Somewhat unhelpful	18	5.9
A little unhelpful	16	5.2
A little helpful	53	17.4
Somewhat helpful	99	32.5
Extremely helpful	92	30.2
No response	13	4.3

Table 13 Continued

Statement	Freq.	%
Q22j A CLASS coach (not my supervisor) would visit my classroom and demonstrate/model for me, specific teaching strategies related to the CLASS dimensions so I can see it being done.		
Not at all helpful	9	3.0
Somewhat unhelpful	6	2.0
A little unhelpful	19	6.2
A little helpful	48	15.7
Somewhat helpful	105	34.4
Extremely helpful	105	34.4
No response	13	4.3

Note. CLASS = Classroom Assessment Scoring System.

helpful/constructive with approximately 25% indicating the feedback was extremely helpful/constructive, 44% indicating it was somewhat helpful/constructive, and 16.1% indicating it was a little helpful/constructive. Results of all teachers' responses on Usefulness of CLASS Interventions (UCI) appear in Table 13.

Classroom Assessment Scoring System

CLASS is a valid and reliable instrument that measures classroom quality by observing teacher–child and peer interactions (Pianta, La Paro, et al., 2008). CLASS scores are organized into three domains, (a) Emotional Support (ES), (b) Classroom Organization (CO), and (c) Instructional Support (IS). Each domain is scored using a 7-point Likert-based scale, with scores of 1 and 2 considered low, scores of 3, 4, and 5 midrange, and scores of 6 and 7 in the high range. One dimension, negative climate, is scored in reverse. With the exception of negative climate, scores in the high range are indicative of high-quality classrooms.

Emotional Support (ES) is a 4-item instrument that assesses the degree to which teachers establish and promote a positive climate in their classroom through everyday interactions. Each item included in the ES construct was scored on a 7-point Likert-based scale, from low to high. Scores of the ES construct for the sample ranged from 3.88 to 7.00, with higher scores indicating higher levels of emotional support.

Classroom Organization (CO) is a 3-item instrument that assesses classroom routines and procedures related to the organization and facilitation of children's behaviors, time, and productivity. Each item included in the CO construct was scored on a 7-point Likert-based scale, from low to high. Scores of the CO construct for the sample ranged from 3.50 to 7.00, with higher scores indicating more effective classroom organization and management.

Instructional Support (IS) is a 3-item instrument that assesses the effectiveness of teachers' abilities to promote higher-order thinking, cognitive skills, and language development. Each item included in the IS construct was scored on a 7-point Likert-based scale, from low to high. Scores of the IS construct for the sample ranged from 1.33 to 5.67, with higher scores indicating higher levels of cognition, general knowledge, and language skills.

Descriptive Statistics and Reliability

Measures of central tendency for mean scores and Cronbach's alpha coefficients of internal consistency and reliability of the EBPAS subscales and CAS constructs across programs and combined are presented in Tables 14 through 16. A Cronbach's coefficient alpha value of .70 or greater indicates good reliability of an instrument with the data collected (Tabachnick & Fidell, 2007). The EBPAS subscale Divergence score was the only construct that was below .70, however, it was close to the threshold (.687). CLASS reliable individuals in each of the seven programs scored classrooms using the CLASS instrument, however, because the reliability of individuals was assumed but not verified, internal consistency could not be validated for the CLASS. The EBPAS and CAS instruments were reliable with the data collected for this study.

Principal Factor Analysis on the Classroom Attitude Scale

A confirmatory factor analysis using PCA was performed to determine the reliability of the CAS for comparison with EBPAS factors. The confirmatory factor analysis is the standard for factor analysis because it is more complex and comprehensive than exploratory factor analysis (Pallant, 2007).

Table 14 Measures of central tendency of programs on the four Evidence-based Practice Attitude Scale domain variables of the study

Variable/type/program	*N*	*M*	*SD*	*Mdn*	Sample range	Cronbach's α
EBPAS Requirements	295	3.12	0.76	3.00	1.00–4.00	.923
Program A	8	2.92	1.11	3.00	1.00–4.00	
Program B	16	3.27	0.66	3.17	2.00–4.00	
Program C	30	3.18	0.67	3.00	2.00–4.00	
Program D	36	2.93	0.82	3.00	1.00–4.00	
Program E	40	3.25	0.77	3.33	2.00–4.00	
Program F	56	3.00	0.73	3.00	1.00–4.00	
Program G	109	3.17	0.74	3.00	1.33–4.00	
EBPAS Appeal	297	2.86	0.70	3.00	1.00–4.00	.801
Program A	8	2.84	1.01	3.00	1.25–4.00	
Program B	17	2.79	0.88	2.75	1.00–4.00	
Program C	30	2.91	0.70	3.00	1.00–4.00	
Program D	36	2.93	0.66	3.00	1.25–4.00	
Program E	40	2.87	0.69	3.00	1.33–4.00	
Program F	57	2.84	0.74	3.00	1.00–4.00	
Program G	109	2.85	0.67	3.00	1.50–4.00	
EBPAS Openness	302	2.83	0.62	2.88	0.75–4.00	.785
Program A	8	3.22	0.53	3.25	2.50–4.00	
Program B	17	2.91	0.72	3.00	1.25–4.00	
Program C	30	2.82	0.58	2.88	1.50–4.00	
Program D	36	2.58	0.55	2.50	1.75–4.00	
Program E	40	2.89	0.49	3.00	1.75–4.00	
Program F	59	2.87	0.65	2.75	1.25–4.00	
Program G	112	2.84	0.67	3.00	0.75–4.00	
EBPAS Divergence	301	2.51	0.75	2.50	0.25–4.00	.687
Program A	8	2.78	0.28	2.88	2.25–3.00	
Program B	17	2.19	0.64	2.25	0.25–3.00	
Program C	30	2.34	0.77	2.25	1.00–3.75	
Program D	36	2.86	0.73	3.00	1.00–4.00	
Program E	40	2.82	0.63	3.00	1.25–4.00	
Program F	59	2.21	0.66	2.25	0.50–3.75	
Program G	111	2.53	0.79	2.50	0.50–4.00	
Total EBPAS	302	2.82	0.47	2.75	1.56–3.88	.821
Program A	8	2.94	0.43	2.92	2.31–3.75	
Program B	17	2.78	0.41	2.63	2.19–3.69	
Program C	30	2.81	0.42	2.70	1.94–3.63	
Program D	36	2.82	0.47	2.69	2.06–3.88	
Program E	40	2.96	0.48	2.88	2.00–3.81	
Program F	59	2.72	0.46	2.69	1.56–3.81	
Program G	112	2.84	0.48	2.77	1.85–3.81	

Note. EBPAS = Evidence-based Practice Attitude Scale; *M* = mean; *SD* = standard deviation; *Mdn* = median.

Table 15 Measures of central tendency of programs and types on the two CLASS Attitude Scale domain variables of the study

Variable/Type/Program	*N*	*M*	*SD*	*Mdn*	Sample range	Cronbach's α
Teachers' attitudes toward the CLASS (CAS ATC)	303	4.24	0.88	4.36	1.29–6.00	.898
Program A	8	4.68	0.76	4.63	3.58–5.83	
Program B	17	4.60	0.93	4.58	2.09–5.67	
Program C	30	3.70	1.02	3.91	2.00–5.58	
Program D	36	3.90	0.82	3.96	1.29–5.50	
Program E	41	4.20	0.68	4.08	2.75–5.67	
Program F	59	4.58	0.69	4.64	2.92–6.00	
Program G	112	4.24	0.91	4.44	1.42–5.75	
Teachers' perceived usefulness of CLASS intervention (CAS UCI)	298	4.48	0.83	4.60	1.00–6.00	.813
Program A	8	4.75	0.56	4.75	3.80–5.40	
Program B	17	4.94	0.50	5.00	4.10–6.00	
Program C	30	4.63	0.68	4.65	3.40–5.80	
Program D	36	4.34	0.74	4.40	2.40–6.00	
Program E	40	4.59	0.78	4.55	2.20–6.00	
Program F	57	4.34	0.89	4.50	1.00–6.00	
Program G	110	4.44	0.90	4.58	1.80–6.00	

Note. CLASS = Classroom Assessment Scoring System; CAS = CLASS Attitude Scale; ATC = Attitudes Toward CLASS; UCI = Usefulness of CLASS Intervention; *M* = mean; *SD* = standard deviation; *Mdn* = median.

Prior to performing PCA the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix on the 24 Likert-scaled items of the CAS survey revealed the presence of many coefficients of .3 and greater. The Kaiser–Meyer–Olkin value was .85, exceeding the recommended value of .6 (Kaiser, 1970, 1974). The anti-image correlation matrix was inspected as it relates to the 24 survey items, and items with a value of less than .40 on the diagonal were removed. All 24 items remained. The Kaiser–Meyer–Olkin test on the 24 retained survey items returned a value of .85, which was above the acceptable minimum value. Bartlett's (1954) test of sphericity was performed on the 24-item matrix and returned a significant value ($p < .0005$), supporting the factorability of the correlation matrix.

Table 16 Measures of central tendency of programs and types on the three CLASS domain variables of the study

Variable/type/program	*N*	*M*	*SD*	*Mdn*	Response rate	Sample range
CLASS ES score	297	6.07	0.67	6.25	97.4	3.88–7.00
Program A	9	5.87	0.41	6.12		5.33–6.17
Program B	16	5.98	0.30	6.09		5.58–6.31
Program D	36	6.09	0.24	6.15		5.35–6.33
Program C	28	5.58	0.61	5.65		4.60–6.44
Program G	111	5.96	0.84	6.25		3.88–7.00
Program E	38	6.41	0.41	6.38		5.38–7.00
Program F	59	6.32	0.53	6.50		5.00–7.00
CLASS CO score	297	5.78	0.72	5.87	97.4	3.50–7.00
Program A	9	5.05	0.63	5.39		4.22–5.55
Program B	16	5.46	0.37	5.33		5.11–5.99
Program D	36	5.70	0.40	5.87		4.73–6.13
Program C	28	5.51	0.71	5.55		4.32–6.92
Program G	111	5.86	0.88	6.00		3.50–7.00
Program E	38	5.91	0.62	6.00		4.33–7.00
Program F	59	5.92	0.54	6.00		4.80–6.80
CLASS IS score	297	3.35	0.91	3.33	97.4	1.33–5.67
Program A	9	3.31	1.05	3.39		1.77–4.43
Program B	16	3.07	0.51	3.24		2.45–3.67
Program D	36	3.15	0.72	3.00		2.00–4.49
Program C	28	3.08	0.43	3.08		2.01–4.01
Program G	111	3.51	1.03	3.50		1.33–5.67
Program E	38	3.60	1.02	3.50		2.00–5.50
Program F	59	3.20	0.88	3.00		1.80–5.20

Note. CLASS = Classroom Assessment Scoring System; ES = Emotional Support; CO = Classroom Organization; IS = Instructional Support; *M* = mean; *SD* = standard deviation; *Mdn* = median.

Principal Components Analysis (PCA) revealed the presence of six components with eigenvalues of 1 or greater, explaining 65% of the variance. An inspection of the screeplot revealed a leveling after the second component. Using Catell's (1966) scree test, it could be determined that two components would be retained for further investigation. The use of 24 items compiled into six components was further supported by the results of parallel analysis, which showed six components with an eigenvalue exceeding the corresponding criterion values for a randomly generated data matrix of the same size (24

variables X 305 respondents). The component matrix indicated strong loadings on two components. The six-component solution explained a total of 65% of the variance, with Component 1 contributing 29.78%, Component 2 contributing 12.67%, Component 3 contributing 7.15%, Component 4 contributing 5.85%, Component 5 contributing 4.90%, and Component 6 contributing 4.82%.

Of the 24 items included in the factor rotation, 12 items loaded strongly on the first component, 10 items loaded strongly on the second component, one item loaded on the third component (Item 11), and one item loaded on the fourth component. Because Items 9 and 11 did not load onto either of the first two-component solution, they were removed. To aid in the interpretation of the two components, varimax rotation was performed. The two-component solution explained a total variance of 42.45. The two-factor rotated solution revealed the presence of simple structure (Thurstone, 1947), with the two components showing a number of strong loadings that explained 42% of the variance in the model. It was decided that this 22 item, two-component solution was the best model.

Table 17 presents the 22 survey statements and their associated factor loadings for the two-component solution. The factor loadings, also called component loadings in PCA, are the correlation coefficients between the survey items (rows) and factors (columns). Analogous to Pearson's correlation coefficient, the squared factor loading is the percent of variance in a particular survey item explained by the factor (component). The Cronbach's alpha value of Component 1 was .898, and of Component 2 was .813, above the .70 threshold for good internal-consistency reliability.

Table 17 Summary of Exploratory Factor Analysis Loadings for a Varimax two-factor Solution

	Variable/statement	Factor loading	**α**
Attitudes Toward the CLASS (CAS ATC)			.898
Q1	Level of comfort you currently feel with CLASS.	.468	
Q2	CLASS accurately measures the quality of my classroom(s)	.823	
Q3	CLASS has improved the quality of emotional support I provide my students.	.845	
Q4	CLASS has improved the quality of my classroom organization I provide my students.	.859	
Q5	CLASS has improved the quality of my instructional support I provide my students.	.836	
Q6	CLASS has helped me to become a better teacher/assistant teacher.	.843	
Q7	CLASS has increased the frequency of interactions I have with children in my classroom(s).	.763	
Q8	CLASS has increased the quality of my interactions I have with children in my classroom(s).	.793	
Q10	If given the opportunity, I would choose not to use the CLASS.	-.553	
Q12	I prefer to have my supervisor observe me using CLASS.	.353	
Q13	I think it is important to establish professional development goals related to CLASS to improve my teaching.	.606	
Q18	Describe the type of feedback most typical of the feedback you received overall about your teaching performance based on the CLASS observations.	.481	
Usefulness of CLASS Interventions (CAS UCI)			.813
Q22a	Provide me with CLASS reading materials that I can read on my own.	.334	
Q22b	Weekly time to review CLASS videotapes in the domains/dimensions of my choosing.	.638	
Q22c	Provide me with ongoing scheduled meeting opportunities to discuss/dialogue with my peer(s) about implementing specific CLASS dimensions with time for me to practice implementing in between meetings.	.650	
Q22d	Ongoing one-on-one coaching about my CLASS	.706	

Table 17 Continued

	Variable/statement	Factor loading	α
	observation(s) with specific suggestions on ways to strengthen my teaching in the CLASS dimensions of my choice.		
Q22e	Participate in group CLASS training(s) that provides me with information about how to implement the dimensions in each of the CLASS domains.	.608	
Q22f	Receive a written report after each set of CLASS observations listing what I did well, what I can improve on, and specific strategies for improvement.	.472	
Q22g	Videotape of me implementing CLASS dimensions that I can review privately.	.678	
Q22h	Videotape of me implementing CLASS dimensions that I review and discuss with a CLASS coach.	.675	
Q22i	My supervisor would visit my classroom and demonstrate/model for me specific teaching strategies related to the CLASS dimensions so I can see it being done.	.534	
Q22j	A CLASS coach (not my supervisor) would visit my classroom and demonstrate/model for me, specific teaching strategies related to the CLASS dimensions so I can see it being done.	.651	

Note. CLASS = Classroom Assessment Scoring System; CAS = CLASS Attitude Scale; ATC = Attitudes Toward the CLASS; UCI = Usefulness of CLASS interventions; Item 1: 1 = Extremely Uncomfortable, 2 = Uncomfortable, 3 = A Little Uncomfortable, 4 = A Little Comfortable, 5 = Comfortable, 6 = Extremely Comfortable; Items 2 -13: 1 = Strongly Disagree, 2 = Mostly Disagree, 3 = Disagree A Little, 4 = Agree A Little, 5 = Mostly Agree, 6 = Strongly Agree; Item 18: 1 = Extremely critical, 2 = Somewhat critical, 3 = A little critical, 4 = A little helpful/constructive, 5 = Somewhat helpful/constructive, 6 = Extremely helpful/constructive; Items 22a – 22j: 1 = Not at all helpful, 2 = Somewhat unhelpful, 3 = A little unhelpful, 4 = A little helpful, 5 = Somewhat helpful, 6 = Extremely helpful.

Inferential Analyses and Assumptions

Statistical analyses of the study included analysis of variance (ANOVA) and independent sample *t*-tests for Research Questions 5 and 6, and correlational analyses for Research Questions 1 through 4 and 6. The dataset was investigated for the inferential analysis assumptions of absence or missing data, absence of outliers, normality, homogeneity of variances, linearity, homoscedasticity, and the absence of multicollinearity.

Data were missing for some records across many of the variable constructs used in inferential analysis: seven records (2%) on the CLASS Emotional Support (ES) variable, seven records (2%) on the CLASS Classroom Organization (CO) variable, eight records (3%) on the CLASS Instructional Support (IS) variable, 10 records (3%) on the EBPAS subscale Requirement variable, eight records (3%) on the EBPAS subscale Appeal variable, three records (1%) on the EBPAS subscale Openness variable, four records (1%) on the EBPAS subscale Divergence variable, 3 records (1%) on the total

EBPAS variable, two records (1%) on the CAS Attitudes towards CLASS (ATC) variable, and seven records (2%) on the CAS Usefulness of CLASS Interventions (UCI) variable. SPSS software offers an option of pairwise deletion of records with missing data. Pairwise deletion is a technique that excludes cases only when they are missing data for a particular analysis, but includes the case for all analyses for which they have the needed information (Pallant, 2007). Therefore, to help retain as much power as possible for this study, the cases with the missing information on variables used for a particular inferential analysis were excluded only for that analysis, but the cases were retained for analyses for which they had the available information.

Outliers in a dataset have the potential to distort results of an inferential analysis.

A check of box plots for all 10 dependent variable constructs was performed to visually inspect for outliers. Eleven outliers were found on the CLASS Emotional Support (ES) variable; four outliers on the CLASS Classroom Organization (CO) variable; seven outliers on the EBPAS subscale Appeal variable; four outliers on the EBPAS subscale Openness variable; one on the EBPAS subscale Divergence variable; seven outliers on the CAS Attitudes Towards the CLASS (ATC) variable; and eight on the CAS Usefulness of CLASS Interventions (UCI) variable. The variables were standardized to check for the presence of extreme outliers (z = +/-3.3). None of the outliers were extreme. A data check of the outliers indicated that they were within the acceptable range of values for the constructs. A check of the mean values and 5% trimmed mean values for the constructs did not indicate a large difference in values. It was therefore determined all records would be retained for analysis and that the outlier assumption was not violated.

Normality for the scores of the 10 variable constructs was investigated with SPSS Explore. The Kolmogorov–Smirnov test for normality indicated that all variables were not normally distributed ($p < .01$). However, the Kolmogorov–Smirnov test is sensitive to larger sample sizes, with significant findings returned when sample sizes are larger ($n >$ 50; Pallant, 2007). A visual check of histograms and normal Q-Q plots for the seven variable constructs indicated distributions close to normal. A comparison of the mean, 5% trimmed mean, and median relating to each of the 10 variable constructs indicated numbers close in value to the measures according to constructs, indicating that outliers and skew were not adversely affecting the distribution of the variables. Therefore the assumption of normality was not violated and parametric tests were used on the 10 variable constructs during inferential analysis.

Assumptions of linearity between study variables and homoscedasticity, requirements for correlational analysis, were checked with scatterplots of the data. The assumptions of linearity and homoscedasticity were not violated.

Multicollinearity diagnostics for the path analysis were performed using SPSS via correlational analysis. Multicollinearity may be assumed if a correlation coefficient between two variables is .90 or greater, (Pallant, 2007). No violations were noted and the assumption of absence of multicollinearity was met.

Levene's test of equality of variances was performed to investigate violations of the equal variance assumption for the independent samples *t*-tests and the analysis of variance (ANOVA). The assumption of equal variances was violated for the ANOVA analysis involving the independent program-options groups on the CLASS Emotional Support (ES) variable ($p = .007$). SPSS provides a result with adjusted degrees of freedom when the equality of variances assumption is violated using the Welch test, and this result was reported in the findings for the ANOVA analyses with unequal variances. The assumption of equality of variances between the three program options groups for the other three variable constructs—CLASS Classroom Organization (CO), CLASS Instructional Support (IS), and CAS Usefulness of CLASS Interventions (UCI)—was met. Additionally, the assumption of equality of variances between all other independent variables and the four variable constructs was met. The assumption of equal variances was violated for the independent *t*-test involving the number of months children attend school and the CAS UCI variable ($p = .001$). Also, the assumption of equal variances was violated for the independent *t*-test involving the current position and the CLASS ES variable ($p = .004$). SPSS provides a result with adjusted degrees of freedom when the equality of variances assumption is violated and this result was reported in the findings

for the independent *t*-test with unequal variances. The assumptions of equal variances were met for all other *t*-tests performed in this study.

Analyses and Finding Addressing Research Questions

Analyses and Findings of Research Question 1

Is there an association between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and the Evidence-Based Practice Attitude Scale (EBPAS) scores?

A series of Pearson's product-moment correlations were performed to compare bivariate associations of the continuous or dichotomous inferential-analysis variables. However, if either of the variables in a pair was ordinal in level, then Spearman's rank-order correlation was used in lieu of Pearson's product-moment correlations (Pallant, 2007). Table 18 presents the findings of the correlational analyses.

Correlations with absolute values of .10 to .29 are considered weak, .30 to .49 are

Table 18 Correlations for Bivariate Relationships of Classroom Assessment Scoring System Domains and Evidence-Based Practice Attitude Scale Subscales

Variable	1	2	3	4	5	6	7
1. CLASS Emotional Support							
2. CLASS Classroom Organization	.692**						
3. CLASS Instructional Support	.544**	.645**					
4. EBPAS subscale Requirements	.006	.026	.077				
5. EBPAS subscale Appeal	.064	.044	.049	.335**			
6. EBPAS subscale Openness	.156**	.190**	.159**	.335**	.318**		
7. EBPAS subscale Divergence	.049	.049	.057	.166**	.169**	.104	
8. Total EBPAS	.109	.120*	.137*	.714**	.691**	.639**	.574**

Note. CLASS = Classroom Assessment Scoring System; EBPAS = Evidence-based Practice Attitude Scale; * $p < .05$; ** $p < .001$.

moderate, and .50 to 1.0 are strong (Pallant, 2007). The results returned many weak, yet significant correlations. Significance on the weak correlations was most likely due to the size of the data set, which can be considered large. Larger datasets will return significant findings on smaller effects (Tabachnick & Fidell, 2007).

A total of five weak positive correlations were found between the five EBPAS variables (four subscales and one total score) and the three CLASS domains. These correlations were between the EBPAS Openness subscale and the CLASS Emotional Support (ES) score ($r = .156$, $p = .007$), the EBPAS Openness subscale and the CLASS Classroom Organization (CO) score ($r = .190$, $p = .001$), the EBPAS Openness subscale and the CLASS Instructional Support (IS) score ($r = .159$, $p = .006$), the total EBPAS and the CLASS Classroom Organization (CO) score ($r = .120$, $p = .040$), and the total EBPAS and the CLASS Instructional Support (IS) score ($r = .137$, $p = .019$).

Conclusions for Research Question 1

Many pairs of the variable-construct scores significantly correlated. The EBPAS subscale Openness correlated with the CLASS Emotional Support, CLASS Classroom Organization, and CLASS Instructional Support and the total EBPAS correlated with the CLASS Classroom Organization and CLASS Instructional Support. Although causality cannot be confirmed, teachers' CLASS scores reflect the actual implementation of evidence-based practices in classroom organization and instructional support, which were shown to be related to the level of openness and total scores on the EBPAS scale.

Analyses of Research Question 2

Is there an association between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and the CLASS Attitude Survey (CAS)?

A series of Pearson's product-moment correlations were used to compare bivariate associations of inferential-analysis variables for Research Question 2. Table 19 presents the findings of the correlational analyses.

A total of three weak but statistically significant correlations were found between the three CLASS domains and the two CAS constructs, Attitudes Toward CLASS (ATC), and Usefulness of Interventions (UCI). These correlations were between the CLASS Emotional Support score and the CAS ATC score (r = .155, p = .008), the CLASS Classroom Organization score and the CAS ATC score (r = .117, p = .044), and CLASS Instructional Support score and the CAS Attitudes Toward CLASS score (r = .198, p = .001). These results indicated a direct relationship between CLASS domains and CAS variables.

Conclusions for Research Question 2

Two pairs of variable-construct scores significantly correlated. CAS ATC was correlated with the CLASS Emotional Support (ES), CLASS Classroom Organization

Table 19 Correlations for Bivariate Relationships of Classroom Assessment Scoring System Domains and CLASS Attitude Scale Constructs Used for Inferential Analysis

Variable	1	2	3	4
1. CLASS Emotional Support				
2. CLASS Classroom Organization	.692**			
3. CLASS Instructional Support	.544**	.645**		
4. CAS Attitudes Toward CLASS	.155**	.117*	.198**	
5. CAS Usefulness of CLASS Interventions	.031	.014	.071	.334**

Note. CLASS = Classroom Assessment Scoring System; CAS = CLASS Attitude Scale; * $p < .05$; ** $p < .001$

(CO) and CLASS Instructional Support (IS). Therefore, an association exists between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores in all three domains and the CLASS Attitude Survey (CAS). Teachers with more positive attitudes toward the CLASS measure also demonstrated higher implementation of emotional support, classroom organization, and instructional support practices as indicated by higher CLASS scores.

Analyses of Research Question 3

Is there an association between Head Start teachers' EBPAS and CAS scores?

A series of Pearson's product-moment correlations were performed to compare bivariate associations of inferential-analysis variables for Research Question 3. Table 20 presents the findings of the correlational analyses.

A total of nine positive correlations were found between the five EBPAS variables (four subscales and one total score) and the two CAS variables, Attitudes Towards CLASS (ATC) and Usefulness of CLASS Interventions (UCI). Two moderate correlations between the EBPAS Openness subscale and the CAS ATC score ($r = .416$, p

Table 20 Correlations for bivariate relationships of Evidence-based Practice Attitude Scale subscales and CLASS Attitude Scale constructs used for inferential analysis

Variable	1	2	3	4	5	6
1. EBPAS subscale Requirements						
2. EBPAS subscale Appeal	.335**					
3. EBPAS subscale Openness	.335**	.318**				
4. EBPAS subscale Divergence	.166**	.169**	.104			
5. Total EBPAS	.714**	.691**	.639**	.574**		
6. CAS ATC	.189**	.118*	.416**	.036	.271**	
7. CAS UCI	.175**	.164**	.307**	.120*	.275**	.334**

Note. EBPAS = Evidence-based Practice Attitude Scale; CAS = CLASS Attitude Scale; ATC = Attitudes Toward CLASS UCI = Usefulness of CLASS Intervention; * $p < .05$; ** $p < .001$.

<.0005) and between the EBPAS Openness subscale and the CAS UCI score (r = .307, p <.0005) were found. Seven weak but statistically significant correlations between the EBPAS Requirement subscale and the CAS ATC score (r = .189, p = .001), the EBPAS Appeal subscale and the CAS ATC score (r = .118, p = .043), the total EBPAS and the CAS ATC score (r = .271, p <.0005), the EBPAS subscale Requirement and the CAS UCI score (r = .175, p = .002), the EBPAS Appeal subscale and the CAS UCI score (r = .164, p = .005), the EBPAS Openness subscale and the CAS UCI score (r = .307, p <.0005), and the EBPAS Divergence subscale and the CAS UCI score *(*r = .120, p = .039). These results indicated a direct relationship between EBPAS variables and CAS variables.

Conclusions for Research Question 3

Many pairs of variable-construct scores significantly correlated. The CAS Attitudes towards CLASS (ATC) correlated with the EBPAS subscale Requirement, EBPAS subscale Appeal, EBPAS subscale Openness, and total EBPAS. The CAS Usefulness of CLASS Interventions (UCI) was correlated with the EBPAS subscale Requirement, EBPAS subscale Appeal, EBPAS subscale Openness, EBPAS subscale Divergence, and total EBPAS. Therefore, an association exists between Head Start teachers' EBPAS and CAS scores. Specifically, these data prove a direct relationship between all EBPAS subscales and CAS ACT, UCI, with EBPAS Openness subscale showing the strongest correlations.

Analyses of Research Question 4

Is there an association between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and demographic variables?

A series of Spearman's rank-order correlation analyses were used to address Research Question 4 of this study. Spearman's correlation analyses were conducted rather than Pearson's product-moment correlation analyses, because assumptions for Pearson's product-moment correlations require linearity and a continuous or dichotomous level of measurement for the variables included in analysis (Pallant, 2007). All demographic variables had an ordinal level of measurement and there was not necessarily a linear relationship between some variable pairs, necessitating the use of Spearman's rank-order correlation. Correlations are not designed to detect cause and effect, but only to help in determining the direction and magnitude of an association between two variables. Direct (positive) correlations indicate that the values of two variables move in a like manner, with both variables' values either increasing or decreasing. Indirect (negative) correlations indicate that the values of two variables move in opposing directions; that is, when the values of one variable increase, the values of the other variable decrease. According to Cohen (1992), a correlation coefficient with an absolute value between .10 and .29 denotes a small effect between two variables, a correlation coefficient between .30 and .49 is a medium effect, and a correlation coefficient between .50 and 1.0 is a large effect. Table 21 presents the findings of the correlational analyses.

A very small, yet significant, positive correlation between the variables of educational level and the CLASS CO score ($\rho = .116$, $p = .047$) indicated that when teachers' educational level increased or decreased, the CLASS CO scores moved similarly.

Table 21 Correlations for bivariate relationships of Classroom Assessment Scoring System domains and demographic variables

	Variable	1	2	3	4	5	6	7	8	9	10
1.	CLASS Emotional Support										
2.	CLASS Classroom Organizations	.675**									
3.	CLASS Instructional Support	.575**	.645**								
4.	Age	-.015	-.048	.023							
5.	Job title	.053	-.025	-.024	.085						
6.	Current position	.027	-.006	.012	.060	.239**					
7.	Number of months attended by children	.003	.034	.073	.062	-.022	.104				
8.	Program options	.094	-.008	.067	.091	.004	.275**	.245**			
9.	Educational level	-.020	.116*	.083	-.099	-.633	-.035	.039	.112		
10.	Years at Head Start	.054	-.014	-.033	.508**	-.022	-.054	.015	.058	-.087	
11.	Years in early childhood education	.054	.047	.028	.518**	-.044	-.044	.049	.072	.035	.739**

Note. CLASS = Classroom Assessment Scoring System; * $p < .05$; ** $p < .001$

Conclusions for Research Question 4

One demographic variable, educational level, significantly correlated with the CLASS Classroom Organization. Therefore, an association exists between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and demographic variables. However, a majority of demographic variables yielded no correlations. It is unknown why one demographic variable yielded a small but significant association given a majority of demographic variables did not correlate. It is conceivable that because CLASS scores are obtained for a given classroom and not delineated by the roles of the adults in the classroom (teacher or assistant teacher) the associations between demographic variables may have been impacted.

Analyses of Research Question 5

Are there differences between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and demographic variables?

A series of independent sample *t*-tests and ANOVAs were used to address Research Question 5. A series of nine independent-samples *t*-tests were performed: three for each of the dependent variables CLASS Emotional Support (ES), CLASS Classroom Organization (CO), and CLASS Instructional Support (IS).

The first series of *t*-tests were conducted to investigate mean differences for each of the dependent variables of CLASS Emotional Support (ES), CLASS Classroom Organization (CO), and CLASS Instructional Support (IS) between the two independent job-position groups of teacher versus assistant teacher. Table 22 presents the findings of the independent *t*-tests. No significant findings were not noted for the any of the three independent samples *t*-tests.

Table 22 Results of Independent Samples *t*-tests of Classroom Assessment Scoring System Domains for Mean Differences between Job Position: Teacher vs. Assistant Teacher

Variable/group	*N*	*M*	*SD*	Mean diff.	*SE* mean diff.	*t*	*p*
CLASS ES				-0.08	0.08	-0.97	.335
Teacher	137	6.04	0.69				
Assistant Teacher	146	6.11	0.65				
CLASS CO				0.03	0.09	0.33	.744
Teacher	137	5.81	0.72				
Assistant Teacher	146	5.78	0.71				
CLASS IS				0.03	0.11	0.28	.779
Teacher	137	3.37	0.92				
Assistant Teacher	146	3.34	0.88				

Note. CLASS = Classroom Assessment Scoring System; ES = Emotional Support; CO = Classroom Organization; IS = Instructional Support; *M* = mean; *SD* = standard deviation; *SE* = standard error.

The second series of *t*-tests investigated mean differences for each of the dependent variables of CLASS Emotional Support (ES), CLASS Classroom Organization (CO), and CLASS Instructional Support (IS) between the two independent current positions of full time versus part time. Table 23 presents the findings of the independent *t*-tests. No significant findings were not noted for the any of the three independent-samples *t*-tests.

The third series of *t*-tests were used to investigate mean differences for each of the dependent variables of CLASS Emotional Support (ES), CLASS Classroom Organization (CO), and CLASS Instructional Support (IS) between the two independent variables of number of months currently attended by children groups, year round versus part of the year. Table 24 presents the findings of the independent *t*-tests. No significant findings were noted for the any of the three independent-samples *t*-tests.

A series of 15 ANOVAs were performed. Five sets of three analyses for the dependent variables of CLASS Emotional Support (ES), CLASS Classroom Organization

Table 23 Results of Independent Samples *t*-tests of Classroom Assessment Scoring System Domains and Mean Differences Between Current Position Groups of Full Time versus Part Time

Variable/group	*N*	*M*	*SD*	Mean diff.	*SE* mean diff.	*t*	*p*
CLASS ES				-0.17	0.08	-1.95	.057
Full time	264	6.06	0.69				
Part time	28	6.22	0.39				
CLASS CO				-0.01	0.14	-0.08	.934
Full time	264	5.79	0.73				
Part time	28	5.80	0.59				
CLASS IS				-0.04	0.18	-0.24	.813
Full time	263	3.34	0.92				
Part time	28	3.38	0.84				

Note. CLASS = Classroom Assessment Scoring System; ES = Emotional Support; CO = Classroom Organization; IS = Instructional Support; *M* = mean; *SD* = standard deviation; *SE* = standard error.

Table 24 Results of Independent Samples *t*-tests of the Classroom Assessment Scoring System Domains and Mean Differences Between Number of the Months Currently Attended by Children Year Round versus Part Year

Variable/group	*N*	*M*	*SD*	Mean diff.	*SE* mean diff.	*t*	*p*
CLASS Emotional Support				-0.01	0.13	-0.05	.961
Year round	28	6.06	0.61				
Part year	266	6.07	0.68				
CLASS Classroom Organization				-0.05	0.14	-0.33	.743
Year round	28	5.74	0.67				
Part year	266	5.79	0.72				
CLASS Instructional Support				-0.22	0.18	-1.21	.228
Year round	28	3.14	0.80				
Part year	265	3.36	0.92				

Note. CLASS = Classroom Assessment Scoring System; ES = Emotional Support; CO = Classroom Organization; IS = Instructional Support; *M* = mean; *SD* = standard deviation; *SE* = standard error.

(CO), and CLASS Instructional Support (IS). The first set involved the independent grouping variable of *age,* the second set included the grouping variable of *program option,* the third set included the grouping variable of *educational level,* the fourth set included the grouping variable of *years teaching Head Start,* and the fifth set included the grouping variable of *years teaching early-childhood education.*

ANOVA Tests for the Independent Age Groups

The first series of three ANOVA analyses included the independent variable of age with five categories of (a) 20–29 years old, (b) 30–39 years old, (c) 40–49 years old, (d) 50–59 years old, and (e) 60 or older. The three dependent variable constructs were CLASS Emotional Support (ES), CLASS Classroom Organization (CO), and CLASS Instructional Support (IS). Table 25 presents the findings of the ANOVA analyses.

Three one-way between groups ANOVAs were conducted to explore the impact of age on the three CLASS variables constructs (ES, CO, IS). No statistically significant differences in the three mean CLASS scores and five age cohorts were found. These results suggested mean CLASS scores did not significantly differ among the five age cohorts.

ANOVA Tests for Program Option Independent Groups

The first series of three ANOVA analyses included the independent variable of program options with three categories of (a) full day, (b) double sessions, meaning AM and PM classes, and (c) other. The three dependent variable constructs used were CLASS Emotional Support (ES), CLASS Classroom Organization (CO), and CLASS Instructional Support (IS). Table 26 presents the findings of the ANOVA analyses.

The first of the three one-way between-groups ANOVA was conducted to explore

Table 25 Results of ANOVA Findings for Three Classroom Assessment Scoring System Domains and Age Variables

Independent/dependent/group/variable	*N*	*M*	*SD*	*F*	*p*	η^2
CLASS Emotional Support				0.26	.904	
20–29 years old	61	6.04	0.68			
30–39 years old	88	6.13	0.68			
40–49 years old	76	6.07	0.62			
50–59 years old	48	6.11	0.63			
60 or older	20	6.01	0.73			
CLASS Classroom Organization				0.29	.882	
20–29 years old	61	5.85	0.69			
30–39 years old	88	5.78	0.81			
40–49 years old	76	5.82	0.62			
50–59 years old	48	5.78	0.66			
60 or older	20	5.66	0.75			
CLASS Instructional Support				0.57	.684	
20–29 years old	61	3.40	0.86			
30–39 years old	87	3.33	0.97			
40–49 years old	76	3.25	0.85			
50–59 years old	48	3.42	0.87			
60 or older	20	3.54	1.09			

Note. ANOVA = analysis of variance; CLASS = Classroom Assessment Scoring System; ES = Emotional Support; CO = Classroom Organization; IS = Instructional Support.

the impact of program schedules on the CLASS Emotional Support (ES) variable construct. The programs were divided into three cohorts (Cohort 1: full day; Cohort 2: double sessions; Cohort 3: other).

Since the assumptions of homogeneity of variance was not met for these data, the *Welch's* adjusted *F* ratio (6.82) was used, which was significant at the .05 alpha level reported as *Welch's* [F (2, 93.96) = 6.82, $p < .002$]. The CLASS scores revealed a statistically significant main effect, indicating that not all cohorts had the same CLASS Emotional Support (ES) scores. The effect size of the mean score differences between the groups was small ($\eta^2 = .04$). Post hoc comparisons using Games-Howell post hoc procedure indicated that teachers teaching double sessions ($M = 5.99$, $SD = 0.72$) had a

Table 26 Results of ANOVA Findings for Classroom Assessment Scoring System Domains Related to Program Options

Dependent variable/group	*N*	*M*	*SD*	*F*	*p*	η^2
CLASS ES				6.82	.002*	.04
Full day	40	6.17	0.53			
Double sessions	203	5.99	0.72			
Other	51	6.31	0.50			
CLASS CO				1.46	.234	
Full day	40	5.94	0.71			
Double sessions	203	5.75	0.71			
Other	51	5.85	0.69			
CLASS IS				2.72	.068	
Full day	40	3.46	0.92			
Double sessions	202	3.27	0.88			
Other	51	3.58	1.00			

Note. ANOVA = analysis of variance; CLASS = Classroom Assessment Scoring System; ES = Emotional Support; CO = Classroom Organization; IS = Instructional Support; *M* = mean; *SD* = standard deviation; * $p < .05$.

significantly lower CLASS ES score than teachers teaching in full-day or other programs ($M = 6.31$, $SD = 0.50$) where other programs included one class for more than half of a day, such as 5 hours. Table 27 presents the post hoc comparisons of the analyses. Significance was not found between any of the other cohort groups.

The second one-way between-groups ANOVA was conducted to explore the impact of program schedules on the CLASS Classroom Organization (CO) variable construct. The programs were divided into three cohorts (Cohort 1: full day; Cohort 2: double sessions; Cohort 3: other). No statistically significant mean differences were found in the CLASS CO construct among the three cohorts [$F(2, 291) = 1.46$, $p = .234$]. The *p*-value of the ANOVA model suggested that the mean CLASS CO scores did not significantly differ among the three program schedule cohorts.

The third one-way between-groups ANOVA was conducted to explore the impact

Table 27 Results of Post Hoc Comparisons of ANOVA Findings for Classroom Assessment Scoring System Domains Related to Program Options via Games-Howell Post Hoc Test

Dependent variable/cohort (I)	Cohort (J)	Mean difference (I–J)	*SE*	*p*
CLASS Emotional Support				
Full day	Double Session	0.18	0.10	.163
Full day	Other	-0.13	0.11	.447
Double Session	Other	-0.31	0.09	.001*
CLASS Classroom Organization				
Full day	Double Session	0.19	0.12	.264
Full day	Other	0.09	0.15	.814
Double Session	Other	-0.10	0.11	.612
CLASS Instructional Support				
Full day	Double Session	0.20	0.16	.436
Full day	Other	-0.11	0.20	.843
Double Session	Other	-0.31	0.15	.117

Note. ANOVA = analysis of variance; CLASS = Classroom Assessment Scoring System; ES = Emotional Support; CO = Classroom Organization; IS = Instructional Support; *SE* = Standard Error of the Mean Difference; *$p < .05$

of program schedule on the CLASS IS variable construct. The programs were divided into three cohorts (Cohort 1: full day; Cohort 2: double sessions; Cohort 3: other. There was not a statistically significant mean difference in the CLASS IS construct between the three cohorts [F (2, 290) = 2.72, p = .068]. The p-value of the ANOVA model suggested that the mean CLASS IS scores did not significantly differ among the three program schedule cohorts.

The first series of three ANOVA analyses included the independent variable of educational levels with four categories of (a) high school diploma, (b) Child Development Association (CDA), (c) associates degree, and (d) bachelor's degree or higher. The three dependent-variable constructs used were CLASS Emotional Support (ES), CLASS Classroom Organization (CO, and CLASS Instructional Support (IS). Table 28 presents the findings of the ANOVA analyses.

Table 28 Results of ANOVA findings for Classroom Assessment Scoring System domains as related to educational levels

Dependent variable/group	*N*	*M*	*SD*	*F*	*p*	η^2
CLASS Emotional Support				0.46	.708	
High school diploma	26	6.12	0.46			
CDA	73	6.16	0.62			
Associates degree	45	6.06	0.62			
Bachelor's degree or higher	149	6.05	0.71			
CLASS Classroom Organization				1.54	.203	
High school diploma	26	5.67	0.55			
CDA	73	5.81	0.70			
Associates degree	45	5.63	0.67			
Bachelor's degree or higher	149	5.87	0.74			
CLASS Instructional Support				0.80	.498	
High school diploma	26	3.23	0.75			
CDA	73	3.25	0.96			
Associates degree	45	3.36	0.77			
Bachelor's degree or higher	148	3.43	0.94			

Note. ANOVA = analysis of variance; CLASS = Classroom Assessment Scoring System; ES = Emotional Support; CO = Classroom Organization; IS = Instructional Support; *M* = Mean; *SD* = standard deviation; CDA = Child Development Associate.

Three one-way between-groups ANOVAs to explore the impact of educational levels on the three CLASS variables construct were performed. No statistically significant differences were found among the three mean CLASS scores and five age cohorts. These results suggested that mean CLASS scores did not significantly differ among the four educational-level cohorts.

The first series of three ANOVA analyses included the independent variable of years at Head Start with six categories of (a) less than 1 year, (b) 1–3 years, (c) 4–6 years, (d) 7–10 years, (e) 11–15 years, and (f) over 15 years. The three dependent-variable constructs used were CLASS Emotional Support, CLASS Classroom Organization, and CLASS Instructional Support. Table 29 presents the findings of the ANOVA analyses.

Table 29 Results of ANOVA findings for Classroom Assessment Scoring System domains related to year teaching Head Start

Dependent Variable / Group	*N*	*M*	*SD*	*F*	*p*	η^2
CLASS Emotional Support				0.72	.612	
Less than 1 year	41	5.99	0.70			
1–3 years	62	6.13	0.64			
4–6 years	65	6.00	0.67			
7–10 years	54	6.15	0.58			
11–15 years	40	6.17	0.68			
Over 15 years	32	6.05	0.67			
CLASS Classroom Organization				0.43	.824	
Less than 1 year	41	5.74	0.73			
1–3 years	62	5.83	0.73			
4–6 years	65	5.83	0.73			
7–10 years	54	5.83	0.65			
11–15 years	40	5.82	0.67			
Over 15 years	32	5.64	0.77			
CLASS Instructional Support				0.40	.849	
Less than 1 year	41	3.29	0.93			
1–3 years	62	3.42	0.89			
4–6 years	64	3.45	0.94			
7–10 years	54	3.33	0.87			
11–15 years	40	3.29	0.89			
Over 15 years	32	3.23	0.94			

Note. ANOVA = analysis of variance; CLASS = Classroom Assessment Scoring System; *M* = mean; *SD* = standard deviation.

Three one-way between-groups ANOVAs were conducted to explore the impact of years at Head Start on the three CLASS variables constructs. No statistically significant differences were found among the three mean CLASS scores and years at Head Start. These results suggested that mean CLASS scores did not significantly differ among the six ranges of years at Head Start cohorts.

The first series of three ANOVA analyses included the independent variable of years in early-childhood education with six categories of (a) less than 1 year, (b) 1–3 years, (c) 4–6 years, (d) 7–10 years, (e) 11–15 years, and (f) over 15 years. The three

dependent variable constructs used were CLASS ES, CLASS CO, and CLASS IS. Table 30 presents the findings of the ANOVA analyses.

Three one-way between-groups ANOVAs were conducted to explore the impact of years in early-childhood education on the three CLASS variables constructs. No statistically significant difference among the three mean CLASS scores and the years in early-childhood education were found. These results suggested that mean CLASS scores did not significantly differ among the six ranges of years in early-childhood-education cohorts.

Table 30 Results of ANOVA findings for Classroom Assessment Scoring System domains related to year teaching in early childhood education

Dependent variable/group	*N*	*M*	*SD*	*F*	*p*	η^2
CLASS Emotional Support				0.36	.878	
Less than 1 year	11	6.29	0.32			
1–3 years	42	6.02	0.61			
4–6 years	40	6.07	0.72			
7–10 years	70	6.08	0.63			
11–15 years	48	6.13	0.73			
Over 15 years	76	6.10	0.65			
CLASS Classroom Organization				0.92	.471	
Less than 1 year	11	5.77	0.85			
1–3 years	42	5.64	0.61			
4–6 years	40	5.85	0.75			
7–10 years	70	5.92	0.68			
11–15 years	48	5.75	0.80			
Over 15 years	76	5.82	0.68			
CLASS Instructional Support				0.86	.512	
Less than 1 year	11	3.69	0.91			
1–3 years	42	3.19	0.82			
4–6 years	40	3.46	1.02			
7–10 years	69	3.39	0.91			
11–15 years	48	3.27	0.94			
Over 15 years	76	3.43	0.85			

Note. ANOVA = analysis of variance; CLASS = Classroom Assessment Scoring System; *M* = mean; *SD* = standard deviation.

Conclusions of Research Question 5

Inferential analyses via a series of independent samples *t*-tests indicated no significant findings. For the second series of ANOVAs, significance was found between the dependent variable CLASS Emotional Support (ES) construct and the independent variable, program schedules. Therefore, differences exist between Head Start teachers' Classroom Assessment Scoring System (CLASS) scores and demographic variables. However, a majority of variables yielded no statistically significant differences. Similar to research Question 4, the lack of correlations between a majority of demographic variables and CLASS scores may have been impacted by CLASS scoring protocols that do not distinguish between individuals job titles.

Analyses of Research Question 6

Research Question 6 asked, "Is there an association between Head Start teachers' preferences for CLASS interventions and demographic variables?"

A series of Spearman's rank-order correlation analyses were used to address Research Question 6 of this study. Table 31 presents the findings of the correlational analyses. No significant associations were found among the dependent variable CAS Usefulness of CLASS Interventions and the eight independent demographic variables.

Conclusions of Research Question 6

Based on these data, it can be concluded there is no association between Head Start teachers' preferences for CLASS interventions and demographic variables. For example, education levels, job title, or years of experience did not demonstrate a relationship to the reported usefulness of the different interventions designed to improve CLASS scores.

Table 31 Correlations for bivariate relationships of CLASS Attitude Scale Usefulness of CLASS Intervention variables and demographic variables

Variable	1	2	3	4	5	6	7	8
1. CAS Usefulness of CLASS Intervention								
2. Age	.111							
3. Job title	.085	.085						
4. Current position	.020	.060	.239**					
5. Number of months attended by children	.063	.062	-.022	.104				
6. Program schedule	-.104	.091	.004	.275**	.245**			
7. Educational level	-.067	-.099	-.633**	-.035	.039	.112		
8. Years at Head Start	.000	.508**	-.022	-.054	.015	.058	-.087	
9. Years in early childhood education	-.006	.518**	-.044	-.044	.049	.072	.035	.739**

Note. CAS = CLASS Attitude Scale; CLASS = Classroom Assessment Scoring System.

Results of Research Question 7

Research Question 7 asked, " Are there differences between Head Start teachers' preferences for CLASS interventions and demographic variables?"

A series of independent-samples *t*-tests and ANOVAs were performed to address Research Question 7. The first series of *t*-tests investigated mean differences for the dependent variable of CAS Usefulness of CLASS Interventions (UCI) between the two independent job-position groups of teacher versus assistant teacher. Table 32 presents the findings of the independent *t*-test. Results were not significant [t (282) = -1.11, p = .267].

The second series of *t*-tests were used to investigate mean differences for the dependent variable of CAS Usefulness of CLASS Interventions between the two independent current positions of full time and part time. Table 32 presents the findings of the independent *t*-test. Results were not significant [t (292) = -0.34, p = .734].

Table 32 Results of independent samples *t*-tests of CLASS Attitude Scale Usefulness of CLASS Intervention variables and demographic variables

Variable/group	*N*	*M*	*SD*	Mean diff.	*SE* mean diff.	*t*	*p*
Job position							
CAS UCI				-0.11	0.10	-1.11	.267
Teacher	137	4.42	0.81				
Assistant Teacher	147	4.52	0.84				
Current position							
CAS UCI				-0.06	0.17	-0.34	.734
Full time	267	4.47	0.83				
Part time	27	4.53	0.86				
Number of months currently attended by children							
CAS UCI				-0.34	0.23	-1.45	.157
Year round	28	4.17	1.21				
Part year	268	4.51	0.77				

Note. CAS = CLASS Attitude Scale; CLASS = Classroom Assessment Scoring System; UCI = Usefulness of CLASS Intervention; *M* = mean; *SD* = standard deviation; *SE* = standard error.

The third series of *t*-tests investigated mean differences for the dependent variable CAS UCI between the two independent numbers of months currently attended by children's groups year round versus part of the year. Table 32 presents the findings of the independent *t*-test. Results were not significant [t (29.36) = -1.45, p = .157].

A series of five analysis of variance tests (ANOVA) were performed: five sets of analyses for the dependent variable (CAS UCI). The first set involved the independent grouping variable of *age,* the second set included the grouping variable of *program schedule,* the third set included the grouping variable of *educational level,* the fourth set included *years teaching Head Start*, and the fifth set included *years teaching in early-childhood education*.

The first of five one-way between-groups ANOVAs was conducted to explore the

impact of age on the CAS UCI variable construct. Groups were divided into five age cohorts (Cohort 1: 20–29 years old; Cohort 2: 30–39 years old; Cohort 3: 40–49 years old; Cohort 4: 50–59 years old; Cohort 5: 60 or older). Table 33 presents the findings of the ANOVA analyses. There was no statistically significant mean difference in the CAS UCI construct among the five cohorts [F (4, 290) = 1.16, p = .327]. The p-value of the ANOVA model suggested mean CAS UCI scores did not significantly differ among the five age cohorts.

The second one-way between-groups ANOVA was conducted to explore the impact of program options on the CAS UCI variable construct. The programs were divided into three cohorts (Cohort 1: full day; Cohort 2: double sessions; Cohort 3: other). Table 33 presents the findings of the ANOVA analyses. There was not a statistically significant mean difference in the CAS UCI construct among the three cohorts [F (2, 293) = 1.46, p = .235]. The p-value of the ANOVA model suggested mean CAS UCI scores did not significantly differ among the three program schedule cohorts.

The third one-way between-groups ANOVA was conducted to explore the impact of educational level on the CAS UCI variable construct. The levels were divided into four cohorts (Cohort 1: high school diploma; Cohort 2: CDA; Cohort 3: associates degree; Cohort 4: bachelor's degree or higher). Table 33 presents the findings of the ANOVA analyses. There were no statistically significant mean difference in the CAS UCI construct among the four cohorts [F (3, 291) = 0.91, p = .435]. The p-value of the ANOVA model suggested mean CAS UCI scores did not significantly differ among the four education-level cohorts.

The fourth one-way between-groups ANOVA was conducted to explore the impact of years teaching Head Start on the CAS UCI variable construct. Groups were

Table 33 Results of ANOVA findings for CLASS Attitude Scale Usefulness of CLASS Intervention variables and demographic variables

Dependent variable/group	*N*	*M*	*SD*	*F*	*p*	η^2
Age						
CAS UCI				1.16	.327	
20–29 years old	63	4.44	0.65			
30–39 years old	91	4.39	0.91			
40–49 years old	74	4.54	0.90			
50–59 years old	47	4.69	0.70			
60 or older	20	4.54	0.82			
Program options						
CAS UCI				1.46	.235	
Full day	40	4.67	0.81			
Double sessions	204	4.46	0.82			
Other	52	4.39	0.82			
Educational levels						
CAS UCI				0.91	.435	
High school diploma	26	4.73	0.53			
CDA	73	4.44	0.95			
Associates degree	46	4.55	0.91			
Bachelor's degree or higher	150	4.47	0.75			
Years at Head Start						
CAS UCI				0.56	.735	
Less than 1 year	43	4.56	0.74			
1–3 years	63	4.51	0.54			
4–6 years	66	4.45	0.92			
7–10 years	54	4.60	0.87			
11–15 years	38	4.34	0.84			
Over 15 years	33	4.46	1.03			
Years in early childhood education						
CAS UCI				1.77	.118	
Less than 1 year	11	4.98	0.59			
1–3 years	43	4.53	0.51			
4–6 years	41	4.26	0.93			
7–10 years	70	4.59	0.72			
11–15 years	48	4.51	0.83			
Over 15 years	76	4.45	0.92			

Note. ANOVA = analysis of variance; CAS = CLASS Attitude Scale; CLASS = Classroom Assessment Scoring System; UCI = Usefulness of CLASS Intervention; CDA = Child Development Associate; *M* = mean; *SD* = standard deviation.

divided into six cohorts (Cohort 1: less than 1 year; Cohort 2: 1–3 years; Cohort 3: 4–6 years; Cohort 4: 7–10 years; Cohort 5: 11–15 years; Cohort 6: over 15 years). Table 33 presents the findings of the ANOVA analyses. Statistically significant mean differences were not found in the CAS UCI construct among the six cohorts [F (5, 290) = 0.56, p = .735]. The p-value of the ANOVA model suggested mean CAS UCI scores did not significantly differ among the six ranges of years teaching Head Start cohorts.

The fifth one-way between-groups ANOVAs was conducted to explore the impact of years teaching early-childhood education on the CAS UCI variable construct. The groups were divided into six cohorts (Cohort 1: less than 1 year; Cohort 2: 1–3 years; Cohort 3: 4–6 years; Cohort 4: 7–10 years; Cohort 5: 11–15 years; Cohort 6: over 15 years). Table 33 presents the findings of the ANOVA analyses. There was not a statistically significant mean difference in the CAS UCI construct among the six cohorts [F (5, 283) = 1.77, p = .118]. The p-value of the ANOVA model suggested mean CAS UCI scores did not significantly differ among the six ranges of years of teaching early-childhood education cohorts.

Conclusions of Research Question 7

Inferential analyses through a series of independent-sample t-tests and ANOVAs indicated no significant findings. Therefore, it can be concluded that no differences exist between Head Start teachers' preferences for CLASS interventions and demographic variables. Specifically, education levels, job titles or years of experience demonstrated no relationship to the reported usefulness of the different interventions used to improve CLASS scores.

Results of Research Question 8

What professional development supports do Head Start teachers describe as most useful in improving CLASS scores?

Two open-ended questions were included at the end of the survey to capture additional information regarding teachers' preferences for useful professional-development interventions to improve CLASS scores that might have been overlooked in the numerically scored survey instrument. Approximately 38% (n = 116) of teachers responded to the open-ended questions and their responses were repetitive with earlier questions in the survey rather than providing additional insight or information as intended. Phenomenological reduction of the data collected from Survey Questions 23 and 24 using NVivo10 software (QSR International, 2012) was performed.

Conclusions of Research Question 8

The two open-ended questions produced very similar responses, provided in the quantitative analyses. The phenomenological analysis added no additional information beyond the interventions included in the CLASS Usefulness of CLASS Intervention analyses.

CHAPTER 4

DISCUSSION

Overview

This study was multifaceted and yielded several statistically significant correlations between variables. The purpose study (a) investigated Head Start teachers' attitudes toward adopting evidence-based practices using the Evidence-Based Practice Attitude Scale or EBPAS (Aarons, 2004), (b) examined Head Start teachers' attitudes toward the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, et al., 2008), (c) identified Head Start teachers' views of the perceived usefulness of various CLASS supports and interventions, (d) determined if teachers' attitudinal responses related to actual CLASS scores, and (e) examined whether demographic variables correlated to attitudinal responses. The results included numerous correlations, some of which will be further discussed in this chapter.

Statistically significant positive correlations were identified between teachers' attitudes toward adopting evidence-based practices and attitudes toward the CLASS. These results may indicate teachers with higher levels of openness to adopting evidence-based practices shared similar views towards the CLASS. Specifically, teacher's that are willing to try new and innovative practices may be more open to CLASS, which offers behavioral markers toward changes in instructional practices.

The relationship extended further to show statistically significant correlations between teachers' reported attitudes described in the CLASS Attitude Survey and actual CLASS scores. Specifically, this study demonstrated Head Start teachers' reported attitudes toward adopting evidence-based practices, as measured in the EBPAS (Aarons, 2004) and attitudes toward the CLASS as measured in the CLASS Attitude Survey, correlated to actual CLASS scores. When attitudes were positive, CLASS scores were higher; when attitudes were less positive, CLASS scores tended to be lower.

Results revealed only two significant correlations between demographic variables and CLASS scores. Specifically, a small but statistically significant result ($p = .002$) was found indicating teachers' CLASS Emotional Support scores were significantly lower in double-session programs than in full-day or other programs. Additionally, post hoc analysis revealed a small yet significant positive correlation between CLASS Classroom Organization and teachers' education levels ($p = .116$, $p = .047$) indicating when teachers' education levels increased or decreased the CLASS Classroom Organization scores moved similarly. No other demographic variables were related to either the EBPAS, CAS, or teachers' CLASS scores. The low number of significant associations between demographic variables and CLASS scores may be related to the way in which CLASS is scored. CLASS scores are derived from a compilation of all adult interactions in the classroom and combine both teachers' and assistant teachers' scores into one aggregate score for each classroom. Thus, is it plausible, the scoring factored into the results. It would be interesting to examine if relationships exist between demographic variables and both EBPAS and CAS scores.

This study also examined the usefulness of various evidence-based interventions to improve instruction related to CLASS as reported by teachers. Timely written

feedback, one-on-one coaching, and modeling of instructional practices were described as the most useful interventions. Results from these data have implications for the design and delivery of targeted and individualized professional development. These results may contribute to the field of early childhood general and special education by impacting the ability of administrators to assess teachers' receptivity in adopting evidence-based practices and the CLASS, as well as informing effectual professional development that may lead to positive instructional changes and ultimately, better outcomes for children.

Major Findings

Three major findings will be discussed that include (a) teachers' attitudes toward the CLASS and preferred interventions, (b) alignment of the EBPAS, CAS, and CLASS scores, and (c) correlates between demographic variables and attitudinal responses and CLASS scores. Each finding will be interpreted and compared to existing empirical evidence.

Teachers' Attitudes Toward CLASS

The most obvious finding prevalent throughout the study is the reported agreement the CLASS is a useful tool that improved the quality of instruction as reported by Head Start teachers obtained through the CAS construct, Attitudes toward the CLASS (ATC). Results revealed 69.5% of respondents reported some level of agreement with the statement "The CLASS accurately measures the quality of my classroom(s)" with 5.9% strongly agreeing, 33.1% mostly agreeing, and 30.5% agreeing a little, compared to 2.0% strongly disagreeing, 9.8% mostly disagreeing, and 16.4% disagreeing a little. This moderately high agreement rate may be influenced by the intensive CLASS supports

provided to Head Start teachers. Four of the seven Head Start programs included in the study employed CLASS coaches to work with teachers on the CLASS. None of the coaches held a supervisory capacity. All seven programs were provided with support from the state-based National Head Start Training and Technical Assistance Network although the level of support may have varied between programs and across states (NCQTL, 2012). This level of coaching support may not be available to all teachers. Researchers Whitebook and Ryan (2011) argued that despite the documented advantages of coaching in changing teachers' practices, coaching opportunities are less available for early childhood teachers. It is conceivable respondents' previous experiences with coaches, and the types of intervention supports provided, may have influenced teachers' attitudes toward CLASS.

Constructive Feedback

Respondents' attitudes relating to experiences with CLASS were further confirmed in a question asking them to describe the *typical feedback* they received following a series of CLASS observations in which 24.9% reported receiving feedback that was extremely helpful/constructive, 43.6% reported receiving feedback that was somewhat helpful/constructive, and 16.1% reported receiving feedback that was a little helpful/critical. Only 1.5% (n = 5) of respondents reported receiving extremely critical feedback. It is plausible teachers' attitudes may also mirror their feedback experiences. These data reflect some similarities to recent research demonstrating the effectiveness of various forms of individualized feedback (Artman-Meeker, 2012; Hemmeter, Snyder, Kinder & Artman, 2011; Neuman, 2012; Powell, Steed & Diamond, 2011; Snyder et al., 2012). The coaching literature provides evidence ongoing feedback increases teachers'

use of evidence-based practices and positively impacts instructional change (Diamond & Powell, 2011, 2012; Domitrovich et al., 2009). Thus, if individualized feedback facilitates changes in instructional practice, it is important to fully understand which components of feedback are most effectual in producing positive instructional changes (e.g., dosage, duration, frequency, with whom, and under what circumstances; Snyder et al, 2012; Zaslow, 2009). Hemmeter et al., (2011) suggested a need to examine how feedback delivery affects teachers' skill acquisition so components of coaching feedback can be standardized and their effectiveness measured. Similar to the teachers in this study, Diamond and Powell (2012) found Head Start teachers were eager to receive individualized feedback. Their research indicated teachers welcomed opportunities to revisit previously addressed instructional practices during feedback sessions, stating opportunities to practice skills and discuss results with their coaches were especially helpful for more experienced teachers (Diamond & Powell, 2012).

Increased Interactions

In addition to agreeing CLASS had improved the quality of teachers' interactions with children, respondents' also reported varying levels of agreement with the statement "CLASS has increased the frequency of interactions I have with children in my classroom(s)*"* With 11.1% strongly agreeing, 37.0% mostly agreeing, and 26.9% agreeing a little. Thus, a majority of teachers in this sample reported moderate to high levels of agreement (75%) CLASS had improved the frequency of their interactions with children. Similarly, a majority of teachers also reported general agreement when asked about the quality of interactions with children by each of the three CLASS domains.

Increased Quality in CLASS Domains

Inquiries specific to the CLASS domains revealed teachers in the study reported moderate to high levels of agreement that the CLASS had improved the quality of emotional support (74.4%), classroom organization (71.8%), and instructional support (83.3%) provided to their students. It is not surprising teachers rated instructional support highest, given concerted efforts by Head Start administrators and the state-based Head Start Training and Technical Assistance Network to focus on raising instructional support scores that historically have been the lowest of the three CLASS domains (NCQTL, 2012; Pianta, La Paro, et al., 2008). Moreover, Instructional Support is often the most difficult to change, as it requires more explicit types of instruction that some teachers may view as too academic or not developmentally appropriate (Diamond & Powell, 2012; Dickinson, Watson, & Farran, 2008). However, Head Start data do show slow but steady improvement in the area of instructional support (NCQTL, 2014), which may indicate a willingness to change instructional practices despite the level of difficulty or pedagogical differences.

Correlations Between Attitudes and CLASS Scores

However, it is not enough for teachers to simply *believe* their skills improved; the researcher also wanted to determine if teachers' attitudes and beliefs were associated with increased measures of teacher quality, specifically teacher-child interactions measured by respondents' actual CLASS scores. A key finding in this study demonstrated a statistically significant correlation between teachers' attitudes toward the CLASS and actual CLASS scores obtained within the 6 months preceding the survey distribution. This finding may suggest teachers can accurately assess improvement in their

instructional skills and teachers' attitudes and beliefs may correlate to actual practices on a larger scale. It would be useful for future researchers to determine the causality and predictive values of teachers' attitudes in relation to classroom quality measured by the CLASS. To date, much of the research has focused on child-outcome benefits (Barnett, Jung, Yarosz, Thomas, & Hornbeck, 2008; Burchinal et al., 2008; Curby et al., 2009; Ludwig & Phillips, 2008; Mashburn et al. 2008; Pence, Justice, & Wiggins, 2008). This finding is particularly relevant for children deemed at risk for learning difficulties given the extant literature demonstrating instructionally supportive classrooms result in higher levels of sustained learning (Burchinal et al., 2008; LoCasale-Crouch et al., 2007; Magnuson et al., 2004; Mashburn et al., 2008). Specifically, classrooms with high levels of concept development, a skill measured in CLASS Instructional Support, have been linked to increases in children's vocabulary and mathematical skills (Curby et al., 2009). Additionally, teachers' increased use of language facilitation, a skill measured in CLASS Instructional Support, is associated with increased language-skill development and social outcomes for children (Barnett et al., 2008).

The respondents in this sample scored fairly consistently yet slightly higher in all three CLASS domains than the national average (see Table 34). Notably, Head Start scores in instructional support decreased nationally in 2013 and the reasons are unknown (NCQTL, 2014). Some speculate the more familiar with the CLASS tool, the more critical CLASS observers have become. However, this hypothesis is questionable given CLASS observers are deemed reliable on the tool. Nonetheless, the scores in the sample trend upward and appear consistent with the predicted rates of improvement when provided intensive CLASS professional development support (Hamre et al., 2012; NCQTL, 2013).

Table 34 National CLASS Scores As Compared to Study Sample

	2011 national average*	2013 national average*	Sample
Emotional support	5.90	5.99	6.04
Classroom organization	5.45	5.63	5.81
Instructional support	2.98	2.72	3.37

Note. *Source, National Center for Quality Teaching and learning, 2012, 2014.

CLASS as a Measure of Instructional Quality

One of the most encouraging results revealed 81% of respondents reported varying levels of agreement with the statement "CLASS has helped me to become a better teacher/assistant teacher" with 19.3% strongly agreeing, 36.1% mostly agreeing, and 25.6% agreeing a little. Only 2% (n = 6) strongly disagreed with the statement, suggesting teacher beliefs may be influential in changing teaching practices (Hamre et al., 2012; Lara-Cinisomo et al., 2009; Pianta et al., 2005; Stipek & Byler, 2004). The overall favorable attitudes toward CLASS reported by teachers in this study, coupled with slow but steadily increasing CLASS scores, suggest targeted interventions may be working. Specifically, the focus of Head Start administrators, the National Head Start Training and Technical Assistance Network, and a willing and able workforce working together may be effectual in raising teacher quality, positively changing instructional practices, and ultimately improving children's school readiness. However, with CLASS instructional support scores in the lower end of the middle range, ongoing support is necessary.

Understanding and assessing teachers' attitudes and beliefs provides important baseline information for developing targeted and individualized professional-development supports that may lead to even larger increases in classroom quality and CLASS scores. Although the implementation of scientific research related to the effects of teachers' attitudes and beliefs on instructional change is evolving (Halle et al., 2013),

several early childhood studies suggest teachers' beliefs may be a significant and often underused factor in informing interventions aimed at changing teachers' instructional practices and behaviors (Hamre et al., 2012; Ludwig & Phillips, 2008; McMullen et al., 2005; Pianta et al., 2005; Stipek & Byler, 1997).

Often policymakers, administrators, and researchers assume practitioners are ready to engage in instructional change; however, researchers suggest only one in five people are typically ready for immediate change (Halle et al., 2013; Prochaska & Velicer, 1997). Thus, the National Institute of Health's Behavior Change Consortium recommended that behavioral-change initiatives consider an individual's receptivity to change (Ory, Jordan, & Bazzare, 2002). In addition to assessing receptivity to change, researchers Diamond and Powell (2012) emphasized that any new intervention must be perceived as doable by teachers if successful implementation is to be achieved. Data from this study suggest teachers believe instructional changes related to CLASS are achievable, which in turn, may lead to improved instructional outcomes.

Usefulness of CLASS Interventions

The author-created CLASS Attitude Survey construct, Usefulness of CLASS Interventions provided additional, reliable information on Head Start teachers' reported usefulness of various interventions in improving interactions with children. Results indicated teachers rated numerous interventions as helpful in improving their skills and interactions with children. Teachers rated written reports following CLASS observations as most helpful, with 88.8% of respondents indicating some level of helpfulness (extremely helpful, somewhat helpful, or a little helpful). One-on-one coaching followed as the second most helpful (88.5%), and modeling specific CLASS related instructional

strategies as the third most helpful intervention (84.5%).

Written Feedback Reports

When asked to rank order various CLASS interventions that respondents' felt were most helpful in improving interactions with children, as measured by the CLASS, "provide me with a written report after each set of CLASS observations listing what I did well, what I can improve on, and specific strategies to implement" was listed most frequently (n = 127) with over a third of respondents ranking it number one. Clearly, written reports provided to teachers immediately following CLASS observations are important to them, however, they are not always provided. Due to the suggested protocol of not sharing CLASS scores with teachers (Pianta, La Paro, et al., 2008), CLASS observers often conduct up to four classroom observation visits in the classroom, during which they take copious amounts of notes; however, they frequently do not share these notes with teachers because the scoring is included on the observation forms. In some cases, observers share a written summary of the combined CLASS notes with teachers. It would be useful to ascertain the frequency and content of written reports provided to Head Start teaching staff and determine if the effects of such reports change instructional practices and if so, to what degree.

This study quantified the value teachers place on written reports. Clearly performance feedback is important to teachers. Given research linking performance feedback to instructional improvement (Barton & Wolery, 2008; Hsieh et al., 2009) it seems prudent for CLASS observers to provide written feedback in a timely manner. Additionally, with technology so readily available and research that purports written feedback is as effective as in-person feedback (Diamond & Powell, 2012; Hsieh et al.,

2009; Smith, Dickinson, Sangeorge, & Anasatopoulos, 2002), it seems a reasonable expectation for teacher support. Notably, a 2011 study revealed a preference by Head Start teachers for researchers and coaches to avoid lengthy written reports and instead provide brief paragraphs and bullet points (Diamond & Powell, 2012).

Coaching

"Provide opportunities for a CLASS coach (not my supervisor) to visit my classroom and demonstrate/model for me specific strategies related to the CLASS dimension so I can see it being done*"* was rated second most frequently (n = 116) by respondents. Interestingly, this study revealed strikingly similar results regarding teachers' preferences for interventions being delivered by a supervisor or by a coach. Questions delineating supervisor or coach preferences in providing interventions were posed several different ways throughout the survey with varying results. Specifically, when respondents were asked to rate a preference for *modeling* CLASS instructional strategies by either a coach or by a supervisor, 80.4% indicated a preference for a supervisor modeling strategies, and 84.4% indicated a preference for coaches. It can be assumed that because these were posed as separate questions (Questions 11 and 12), and because the total exceeded 100%, some respondents reported both supervisors and coaches modeling specific instructional strategies would be helpful in improving teachers' interactions with children. When asked to rate if they preferred to have a coach rather than a supervisor *observe* them using the CLASS, approximately 58% reported varying levels of agreement that they would prefer a coach and 59% a supervisor. These data suggest teachers value CLASS observations and modeling by either a supervisor or a coach. These data are likely explained by teachers' relationships with their current

supervisor or CLASS coach. Notably, researchers generally suggest that coaching is best delivered by someone other than a supervisor, indicating coaching is not a safe environment for teachers when it is tied to a performance evaluation (NCQTL, 2012). The statement rated third most frequently (n = 93) was "Provide opportunities for my supervisor to visit my classroom and demonstrate/model for me specific strategies related to the CLASS dimension so I can see it being done." Again indicating a desire by teachers for modeling that is delivered by either a coach or a supervisor.

In summary, a common thread in the preferred intervention results are (a) a desire by teachers for immediate feedback following CLASS observations, (b) modeling of strategies to improve their instruction by either a supervisor or a coach, and (c) ongoing one-on-one coaching. The desire for feedback and modeling is reiterated in research recommending the use of experiential forms of professional development when the focus is on application of skills or the implementation of evidence-based practices (Diamond & Powell, 2012; Snyder et al., 2012).

Less Preferred Interventions

One of least helpful interventions reported by respondents was in response to the statement "Provide me with weekly time to review CLASS videotapes in the domains/dimensions of my choosing": 16.4% rated it extremely helpful, 26.2% somewhat helpful, and 26.9% a little helpful. Although rated as one of the lowest in usefulness of CLASS interventions, still approximately 69.5% of teachers reported some level of helpfulness in watching self-selected videotaped segments to improve interactions with children. These data may suggest teachers prefer real-time modeling of instructional strategies over watching videotaped segments. Several empirical studies

have incorporated video viewing as a means of training teachers on instructional strategies, showing varying levels of success (Artman-Meeker, 2012; Pianta, Mashburn, et al., 2008; Smith et al., 2002). Several studies found a majority of teachers preferred real-time modeling or video watching coupled with coaching over video viewing independently (Artman-Meeker, 2012; Pianta, Mashburn, et al., 2008; Smith et al., 2002). Yet many CLASS trainings developed for teachers such as the *CLASS Overview* training and *Understanding the CLASS Framework* involve watching videos (Hamre, Goffin, & Kraft-Sayre, 2009). Data from this study is insufficient to conclude video watching is not beneficial; rather, when given a choice of other interventions, a majority of teachers in this sample chose more interactive interventions.

Group Trainings

Additionally, despite evidence that large group, in-service trainings are typically ineffective in changing instructional practices (Fixen et al., 2005; Joyce & Showers, 1982; Snyder et al., 2012; Whitehurst, 2002), 21.6% of teachers in this study indicated trainings would be extremely helpful, 37.4% indicated they would be somewhat helpful, and 37.4% indicated they would be a little helpful. It is likely these ratings are scored moderately high because all of the programs from which the sample was derived routinely receive large group trainings as part of their professional development. Thus, it is a mode of professional development that is familiar and widely used, despite research showing it to be relatively ineffective.

Self-Videotaping and Review

Teachers' responses yielded mixed views on the value of videotaping themselves implementing evidence-based practices delineated in the CLASS dimensions, regardless of whether the video was reviewed privately by the teacher using self-assessment (63.2% reported as useful) or being reviewed with a coach (61.9% reported as useful). Although videotaping followed by some type of review scored lower than the other intervention methods, over half of respondents indicated some level of agreement it would be helpful. Interestingly, 14.1% of teachers rated videotaping themselves and reviewing it with a coach as extremely helpful. Videotaping teachers as a means of improving instruction is increasingly being used as an effective professional-development intervention (NCQTL, 2014; Pianta, Mashburn, et al., 2008). These data may suggest some recognition by teachers regarding the benefits of being videotaped while teaching coupled with some ambivalence in doing so.

In summary, the results of teachers' attitudes toward coaching revealed in this study are not surprising in that teachers indicated a high level of confidence that coaching is helpful, yet are equally open to who should deliver the coaching. A descriptive systematic review of early childhood literature revealed performance-based coaching as the most prevalent type of follow-up, used in 51.6% of reviewed early childhood professional-development studies (n = 256; Snyder et al., 2012). Yet the early childhood literature related to the effects of specific coaching skills continues to lag behind practice (S. L. Ramey & Ramey, 2008; Ryan & Whitebook, 2012; Winton, 2010). As required by Congress, Head Start programs are moving forward in creating professional-development systems without a thorough understanding of the specific professional-development components that are most likely to result in positively changing teachers' instructional

practices (Halle, 2013; Hamre et al., 2012; Winton, 2010). Even less is known about the necessary skill sets of coaches (Winton, 2010). A comprehensive review of the professional development literature identified key principles that affect teachers' knowledge and practice and thus one might extract from these data beneficial characteristics for coaches (Darling-Hammond et al., 2009). From the professional-development literature, educators know the important elements of practice-based coaching include the following steps: (a) provide a clear rationale on why evidence-based practices are being implemented, (b) model instructional practices in the classroom, (c) encourage teachers to practice the skills, (d) provide teachers with timely feedback and review of observations, and (e) allow and plan time for teachers to reflect on and discuss their practices (Neuman, 2013). A clear definition of the characteristics or skills needed to be an effective coach would be valuable knowledge in furthering the work of Head Start administrators and the National Head Start Training and Technical Assistance Network (NCQTL, 2014).

Alignment of the EPBAS, CAS, and CLASS Scores

The EBPAS and the CAS provided face validity; that is, they both proved to be reliable and valid measures. Additionally, construct validity was confirmed, as both instruments accurately measured teachers' attitudes. Analyses of the EBPAS and CAS scores revealed statistically significant correlations between both instruments, thus it may be assumed that teachers' openness and receptivity to adopting evidence-based practices correlates to attitudes towards the CLASS, as revealed in the EBPAS and CAS results. Future research may also investigate the relationships between teachers' responses on the EBPAS (Aarons, 2004) and CAS using an unrestricted factor analyses.

These findings offer potential significance, as the two instruments combined (EBPAS and CAS) offer the possibility of one preliminary tool when used together to measure early childhood practitioners, including Head Start teachers, receptivity to adopting CLASS, and other evidence-based methods such as new curricula, initiatives, or innovative program practices. Although causality cannot be confirmed by this study, using these two reliable and valid instruments concurrently will provide individual and cumulative program information about staff receptivity to change. This information may prove useful in guiding program's professional-development planning and inform the work of the National Head Start Training and Technical Assistance Network in delivering targeted and highly individualized professional development that captures the unique needs of all teaching staff. For example, implementing the EBPAS and CAS will provide programs with a more comprehensive understanding of staff attitudes and preferred supports. Programs may combine these tools to (a) determine teachers' openness and receptivity to the CLASS or other evidence-based practices, (b) identify how previous experiences with the CLASS or other evidence-based practices might influence individual or group attitudes, and (c) identify teachers' preferred methods of professional-development delivery so it can be tailored to them or to groups of teachers. These premises are further supported in an increasing interest in the implementation of science research that emphasizes a need for assessing receptivity, feedback and follow up, such as coaching, as a basis for improving practitioners' implementation of evidence-based practices (Snyder et al., 2012).

Demographic Variables and the EBPAS, CAS, and CLASS

One small statistically significant correlation was found between CLASS Emotional Support and program options. Specifically, a correlation was found between teachers' working in double-session classes and scores in Emotional Support. It is plausible that teachers in full-day or "other" classes are with children for longer periods of time who thus may develop more positive interactions that could account for higher levels of emotional support.

Post hoc analysis also showed one small but statistically significant correlation between CLASS Classroom Organization and teachers education levels ($p = .116$, $p = .047$) indicating when teachers' education levels increased or decreased the CLASS Classroom Organization scores moved similarly. It is unclear why this variable produced a significant relationship when other CLASS domains did not show a relationship to education levels.

Overall, most variables such as education levels, years teaching in Head Start, years teaching in early childhood fields, age, length of school year, and program options yielded small or insignificant results. This is consistent with research indicating Head Start teachers' education levels were not related to classroom quality (Early et al., 2007). However, two major studies did show a correlation between the number of years working with children and observed classroom quality (Phillips et al., 2009; Pianta, 2006). The context in which CLASS scores were analyzed in this study may explain differences as compared to other studies. CLASS scores are an aggregate of observations that include all adults in the classroom over a period of time. Thus, a teacher and assistant teacher in the same classroom would receive the same CLASS scores. Data from this study are insufficient to draw any conclusions as to whether education levels, years of teaching,

and other demographic variables correlate to instructional quality. This study only measured quality based on an aggregate of CLASS scores specific to this study. However, one notably interesting result is the consistency in favorable attitudes consistent among teachers and assistant teachers in the attitudinal survey and preferred supports. These results may suggest that *all* staff, regardless of education levels and experiences, appear willing to improve instructional practices. Further research on specific demographic variables as they relate to the implementation of science and professional-development research may provide further insight into methods of increasing instructional quality.

Implications for Research in Implementing Instructional Changes

An expectation of instructional change seems plausible when comparing the results of this study to recent implementation science research. Aarons, Horowitz, Dlugosz, and Ehrhart (2012) described three types of beliefs related to professional behavioral changes: valence, efficacy, and discrepancy as cited in Peterson, 2013. According to the authors, *valence* denotes the degree of beliefs of individuals that the change is personally worthwhile to them. Thus, for teachers to incorporate evidence-based practices, such as those outlined in the CLASS, instructional changes must be viewed as valuable and meaningful. Results of this study revealed moderate to high levels of agreement that the CLASS has improved the quality of instruction (71% agreement) and frequency of interactions (77% agreement) suggesting teachers do find the CLASS valuable and meaningful.

Efficacy denotes the degree of belief an individual holds that they are capable of implementing a required change. Thus, teachers must hold the view that they have the skills, knowledge, and dispositions to implement the evidence-based practices, such as

those outlined in the CLASS. Results from this study revealed moderate to high levels of comfort with the CLASS (74%). Further, 88% of teachers indicated varying levels of agreement that establishing professional-development goals related to the CLASS would improve their teaching. Thus, these data may be interpreted as moderate to high levels of efficacy.

Discrepancy denotes a belief that the change is needed to address a gap in current practices. Thus, teachers must hold the view that change in instructional practices will remedy a gap in current practices. Although it is unclear in this study, it is possible that teachers' desire to improve instructional practices or CLASS scores, even if mandated, could be viewed as a remedy. The results of this study did reveal that if given the opportunity to *not* use the CLASS, 57.4% of teachers indicated varying levels of disagreement with that statement, that is, over half of the respondents would chose to use CLASS. Overall, the respondents in this study demonstrated moderate to high levels of valence, efficacy, and discrepancy as indicated by their EBPAS and CAS responses.

Researchers suggested a need to look beyond typical types of professional development delivery and examine factors that contribute to positive increases in instructional skills and the application of evidence-based practices (Snyder et al., 2012). The combined use of the EBPAS and CAS present opportunities for Head Start administrators to better understand the needs of staff and develop highly individualized approaches to professional-development delivery. However, one potential obstacle may be teachers' reluctance to answer the EBPAS/CAS survey questions honestly if they know administrators will be able to identify them. This limits the use of the instruments. Staff could answer the questionnaires anonymously, which would provide overall program information but not individualized information. Coaches could administer the

surveys and, depending on their relationship with staff, results might be more truthful. Transparency in informing staff how the data will be used may also help alleviate concerns. Finally, sharing results of the survey with staff as a means of developing individualized professional-development goals may prove useful. It was the author's experience that teachers appreciated the opportunity to share their opinions, with numerous teachers thanking the researcher after completing the survey. However, the results could be different if the researcher was in a position of authority.

Individualized approaches to professional-development delivery is generally viewed as a promising strategy to improve early childhood programming. Research is evolving to offer more definitive answers to questions about coaching efficacy (Artman-Meeker, 2012; Hsieh et al., 2009; Powell & Diamond, 2012; Snyder et al., 2012). Because coaches typically help teachers adopt new instructional practices (Wasik & Hindman, 2011), it seems logical that assessing teachers' receptivity to change as an initial step will help coaches tailor professional-development supports and interventions to individual teachers (Peterson, 2013). Coaches are in a unique position to assess and use teachers' receptivity in individualizing professional-development models. In such cases, the coaching model may need to address teachers' commitment, motivation, and confidence, which may also increase the likelihood teachers will be open to changing their instructional practices (Peterson, 2013).

Limitations

Several important limitations affect the interpretation of the findings from this study. First, questionnaires or surveys capture respondents' beliefs about a topic on a given day. Clearly, survey research, by design, must rely on participants' responses at a

point in time and many variables may influence responses. Using a large sample size may account for some of the influential variables that affect responses, however, it is impossible to account for the myriad of variable discrepancies. In this study, teachers were asked to complete the survey during the first 30 minutes of a regularly scheduled staff meeting. An administrative staff member introduced the researcher, which may have influenced participants' perception of a need to comply with the request to participate, despite having been informed it was optional. Moreover, although the researcher provided participants an option to take the survey outside of the meeting room, only 7 moved to an adjacent room, and 1 took it to the classroom. All other participants remained in the designated meeting room with their colleagues to complete the survey. The fact that participants completed an attitudinal survey where others might view their answers could have affected their scoring. Further, although respondents were asked not to talk while completing the survey, several did, which may have also influenced responses.

Second, because the researcher conducted this survey in three western intermountain states, the results may only be generalized to one regional area. It would be interesting to determine if similar outcomes would be obtained if conducted in another region or nationally. Further, the survey was conducted in various-sized Head Start programs. This design was intentional in an effort to capture a wide array of Head Start programs and experiences. However, one very large program accounted for one-third of the responses. Thus, these results may have skewed more toward the attitudes held by that program, although results show similar patterns of answers regardless of the program type or size. It may be helpful to replicate this study on programs of similar size to compare results. However, because every Head Start program is uniquely designed to

meet the needs of the community they serve, it would be difficult to find programs that operate similarly.

Third, it is plausible that survey responses were influenced by previous experiences with CLASS. Because educators conduct CLASS observations on an ongoing basis, it is possible and likely teachers' scores will change over time. Thus, as teachers become more familiar with the CLASS and gain more experiences, either positive or negative, their attitudes and scoring on the CAS may change. However, there is no way to measure the influence of respondents' previous experiences on their scoring. It would be interesting to conduct the CAS with the same teachers at various future intervals to measure attitudinal changes over time.

Fourth, the EBPAS and the CAS are separate instruments that were combined to appear as one survey. Thus, participants first completed the demographic information, then the EBPAS, which does not mention the CLASS, and lastly completed the CAS, which asks specific questions related to the CLASS. It is unknown whether the ordering of the instruments changed responses. It would be interesting to determine if the ordering of the instruments makes a difference in the scoring. For example, if a respondent had strong positive or negative feelings about the CLASS and the CAS instrument was administered before the EBPAS, it may have changed the response on the EBPAS.

Fifth, although the researcher was able to correlate items between the EBPAS and CAS and between both instruments and actual CLASS scores, much more research is needed to determine causality. There is limited research comparing the value of assessing teachers' attitudes toward evidence-based practices, despite the evolving research base denoting how teachers' attitudes impact instructional changes. Because of the limited evidence, it is difficult to determine if these results are consistent with other early

childhood practitioners or other Head Start teachers.

Last, it is not known how the 10.3% of respondents absent during the distribution of the survey might have responded. Their responses may have influenced the results in either direction.

Direction of Future Research

The early childhood-literature base is scant in attitudinal studies examining teachers' views and comparing teachers' views to actual measures of teacher quality. This is the first known study to investigate teachers' attitudes toward adopting evidence-based practices and the CLASS using two reliable and valid instruments and then comparing attitudinal responses to a quantifiable measure of classroom quality measured by CLASS. This study contributes to the early childhood implementation science literature by proposing a measure that may be useful in assessing teachers' receptivity and needs, as outlined in the initial exploration stage of the stage based framework for professional development systems outlined by the National Implementation Research Network (Blasé & Fixen, 2011; Halle et al., 2013; Tout, Metz & Bartley, 2013). Although empirical evidence has linked teachers' receptivity to higher quality teaching, researchers have not yet determined (a) if receptivity can consistently and reliably predict changes in teachers' instructional practices, (b) what specific attitude and receptivity constructs lead to instructional changes, and (c) the extent to which changes in instructional practice lead to better outcomes for children. It would benefit the early childhood field to better understand if receptivity-assessment tools such as the EBPAS and CAS can inform more targeted and relevant professional-development opportunities for teachers and, if so, how and under what circumstances. Further, if the usefulness of

receptivity-assessment tools can be established, it would be interesting to know if assessing receptivity aids in implementing evidence-based practices and initiatives to scale (Halle et al., 2013).

Finally, a convergence of empirical evidence in early childhood evidence-based professional development has led researchers to question the specific components of professional development that lead to positive changes in instructional practices (Hamre et al., 2012; Snyder et al., 2012). Further research is needed to understand elements that contribute to positive instructional change or barriers that might prohibit change. Researchers know little about the *process* of instructional change. Coaching has emerged as one of the most promising professional-development approaches and new research has provided more guidance on practice-based coaching as a promising strategy to impact instructional changes (Snyder et al., 2014). Yet, questions linger as to the exact dosage, duration, content, and approaches that are most effective. Although evolving, more research is needed to better understand the contributions of each of these variables on instructional change. It would also be helpful to better understand teachers' views, not only related to EBPAS or CLASS, but on a much wider scale. Further, it would be helpful to understand and assess the impact of teachers' involvement in developing targeted interventions designed to enact change.

Summary

In conclusion, the success of early childhood education lies largely in the quality of the teachers. This study has demonstrated a workforce that is open and willing to rise to the difficult task of enacting instructional changes that may lead to improved outcomes for all children. Teachers' responses reported in this study indicated an overall positivity

toward the CLASS as an accurate measure of instructional quality that has improved the quality and frequency of their interactions with children.

These results were further confirmed in teachers' EBPAS scores, with the constructs of Openness and Requirement to adapting evidence-based practices scoring highest of the four constructs. The results implied a willingness and receptivity of Head Start teachers to adopt new practices that may lead to improved instruction. This is an important finding, given research demonstrating teachers' learning is optimized when they are ready to learn, motivated, and actively involved in the content (Knowles, Holton, & Swanson, 1998; Winton, 2010). These results align with Peterson (2013) purporting the common thread in change is a *belief* that instructional behavioral changes are meaningful, intentional, and sustainable. Peterson (2013) stated, "You can have a high quality, evidence-based intervention and knowledgeable leaders and support staff, but without a willing and able workforce, the intervention is unlikely to be implemented and sustained as designed" (p. 45). Therefore, assessing the receptivity and readiness of early childhood teaching staff to adopt change is judicious as a beginning step in implementing any new evidence-based practice.

Author Reflection

This paragraph, written in first person, deviates from the scientific format previously used in this document. Having studied this topic for numerous years, I wish to reflect on my experiences. I agree with researchers Wesley and Buysse (2010) that early childhood program improvement efforts will not occur through increased accountability measures or mandates, rather change is most likely to occur through innovative practices that fundamentally change our thinking and approaches toward program quality. I believe

teachers must be an integral part of the process for it is ultimately incumbent upon them to do the hard work required by change; changing thinking, changing practices, and ultimately changing the future of the early childhood field. Too often, and for far too long, teachers have been the silent voice; not fully considered in the implementation of change process. This study gave me hope that Head Start teachers are not only willing, but eager for feedback and coaching to improve their instructional practices. Further, their efforts to improve instruction have resulted in increasing quality as measured by CLASS and likely other measures as well. The overall favorability of CLASS, despite its use as a Head Start monitoring tool tied to funding, confirmed what I see each day as I am fortunate to work with Head Start teachers; teachers that have evolved from a place of anxiety around CLASS to one of recognition of the CLASS as a tool that can support them. It is my hope that policy makers and administrators provide teachers with the supports they need to continue on the path of improved quality that will ultimately lead to more positive outcomes for all children.

APPENDIX A

DEMOGRAPHIC VARIABLES OF HEAD START TEACHERS

___ Lead/Head teacher	___Assistant teacher	___Other: Please describe:

1. **Check the status of your current position (check only one):**

___ Full time (No less than 30 hours per week)	___ Part time (Less than 30 hours per week)	___ Other: Please describe:

2. **Check the category that best describes the number of months currently attended by the children in your classroom (check only one):**

___ Year round with some holidays and training days off	___ Part year that mostly follows the traditional school year (Approx. August through May)	Other: Please describe:

3. **Check the category that best describes the program option currently attended by the children you are working with a majority of the day (check only one):**

___ Full day (6 hours or more)	___ Double Sessions (AM & PM)	Other: Please describe:

4. **Check the category that best describes your age on your last birthday:**

___18-19 yrs. Old	___ 20-29 yrs. old	___ 30-39 yrs. old	___40-49 yrs. old	___50-59 yrs. old	___60-69 yrs. old	___70 yrs. or older

5. **Check the <u>highest level of education that you</u> <u>currently hold</u> (do not include degrees or certificates you are working on). Please check <u>only one</u>, the highest level of education achieved at this time.**

___ High School Degree or GED	___ CDA (Child Development certificate)
___ Associates degree in early childhood education	___ Associates degree in another field—List the title of your degree:

___ BS or BA in early childhood education	___ BS or BA in another field—List the title of your degree:
___ Master's degree in early childhood education	___ Master's degree in another field—List the title of your degree:
___ PhD or EdD in early childhood education	___ PhD, EdD in another field—List the title of your degree:

6. **List the year you received your highest degree (listed above). If not sure, estimate the approximate year: _____ (ex. 1988).**

7. **List the TOTAL number of years you have worked in Head Start. If not sure, estimate the number of years: _____ years.**

If less than a year, list the number of months: _____ months

8. **List the TOTAL number of years you have worked in the field of early childhood education including Head Start. If not sure, estimate the number of years: _____ years. If less than one year, list the number of months: ____ months**

APPENDIX B

EVIDENCE-BASED PRACTICES ATTITUDE SCALE

AND SCORING

Date: ☐☐ / ☐☐ / ☐☐ **ID** ☐☐☐

EBPAS (©Gregory A. Aarons, Ph.D.)
Evidence-Based Practice Attitude Scale (Teacher Version)

The following questions ask about your feelings about using new types of teaching methods, interventions, or treatments. Manualized teaching intervention refers to any intervention that has specific guidelines and/or components that are outlined in a manual and/or that are to be followed in a structured/predetermined way.

Fill in the circle indicating the extent to which you agree with each item using the following scale:

0 Not at All	1 To a Slight Extent	2 To a Moderate Extent	3 To a Great Extent	4 To a Very Great Extent

	0	1	2	3	4
1. I like to use new types of methods/interventions to help my students……	○	○	○	○	○
2. I am willing to try new types of methods/interventions even if I have to follow a teaching/training manual……	○	○	○	○	○
3. I know better than academic researchers how to care for my students……	○	○	○	○	○
4. I am willing to use new and different types of methods/interventions developed by researchers……	○	○	○	○	○
5. Research based teaching methods/interventions are not useful in practice……	○	○	○	○	○
6. Teaching/classroom experience is more important than using manualized methods/treatm	○	○	○	○	○
7. I would not use manualized methods/interventions……	○	○	○	○	○
8. I would try a new methods/intervention even if it were very different than what I am used to doing……	○	○	○	○	○
For questions 9-15: If you received training in a teaching method or intervention that was new to you, how likely would you be to adopt it if:					
9. it was intuitively appealing?..……	○	○	○	○	○
10. it "made sense" to you?……	○	○	○	○	○
11. it was required by your supervisor?……	○	○	○	○	○
12. it was required by your school?……	○	○	○	○	○
13. it was required by your state?……	○	○	○	○	○
14. it was being used by colleagues who were happy with it?……	○	○	○	○	○
15. you felt you had enough training to use it correctly?……	○	○	○	○	○

Evidence-Based Practice Attitude Scale (EBPAS)©
Items, Factor Loadings, Chronbach's Alphas, and Scoring

Reference:
Aarons, G. A. (2004). Mental health provider attitudes toward adoption of evidence-based practice: The Evidence-Based Practice Attitude Scale. *Mental Health Services Research, 6*(2), 61-74.

Item #	Scale	Factor Loading	Alpha
	Scale 1: Requirements		.90
12	Agency required	.99	
11	Supervisor required	.88	
13	State required	.78	
	Scale 2: Appeal		.80
10	Makes sense	.89	
9	Intuitively appealing	.83	
14	Colleagues happy with therapy	.56	
15	Enough training	.55	
	Scale 3: Openness		.78
2	Will follow a treatment manual	.61	
4	Will try therapy/interventions developed by researchers	.81	
1	Like to use new therapy/interventions	.62	
8	Would try therapy/interventions different than usual	.66	
	Scale 4: Divergence		.59
5	Research based treatments/interventions not useful	.65	
7	Would not use manualized therapy/interventions	.76	
6	Clinical experience more important	.42	
3	Know better than researchers how to care for clients	.34	
	EBPAS Total		.77

SCORING THE SCALES

The score for each subscale is created by computing a mean score for each set of items that load on a given subscale. For example, items 14, 15, and 16 constitute Scale 1. If there is missing data in your data set, computing means may be done allowing for one fewer items than make up the scale.

COMPUTING THE TOTAL SCORE

Only for the total score (not the individual scale scores), items from subscale 4 (Divergence) **must be reverse scored** and the subscale score recomputed. After the reverse scoring is complete, then a mean of the scale scores may be computed to yield the mean score for the total EBPAS.

You may contact Dr. Aarons by email at: gaarons@casrc.org

APPENDIX C

EBPAS FACTOR-LOADING SCORING SYSTEM

Evidence-Based Practice Attitude Scale (EBPAS)©
Items, Factor Loadings, Chronbach's Alphas, and Scoring

Reference:
Aarons, G. A. (2004). Mental health provider attitudes toward adoption of evidence-based practice: The Evidence-Based Practice Attitude Scale. *Mental Health Services Research, 6*(2), 61-74.

Item #	Scale	Factor Loading	Alpha
	Scale 1: Requirements		.90
12	Agency required	.99	
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13	State required	.78	
	Scale 2: Appeal		.80
10	Makes sense	.89	
9	Intuitively appealing	.83	
14	Colleagues happy with therapy	.56	
15	Enough training	.55	
	Scale 3: Openness		.78
2	Will follow a treatment manual	.61	
4	Will try therapy/interventions developed by researchers	.81	
1	Like to use new therapy/interventions	.62	
8	Would try therapy/interventions different than usual	.66	
	Scale 4: Divergence		.59
5	Research based treatments/interventions not useful	.65	
7	Would not use manualized therapy/interventions	.76	
6	Clinical experience more important	.42	
3	Know better than researchers how to care for clients	.34	
	EBPAS Total		.77

SCORING THE SCALES

The score for each subscale is created by computing a mean score for each set of items that load on a given subscale. For example, items 14, 15, and 16 constitute Scale 1. If there is missing data in your data set, computing means may be done allowing for one fewer items than make up the scale.

COMPUTING THE TOTAL SCORE

Only for the total score (not the individual scale scores), items from subscale 4 (Divergence) **must be reverse scored** and the subscale score recomputed. After the reverse scoring is complete, then a mean of the scale scores may be computed to yield the mean score for the total EBPAS.

You may contact Dr. Aarons by email at: gaarons@casrc.org

APPENDIX D

CLASS ATTITUDE SURVEY

Head Start CAS Survey

The answers you provide will be strictly confidential and will not be shared with anyone in your program. Each survey will be coded, which will protect any possibility the responses you provide can be connected to you. Please answer every question. If you have any questions, please ask the person distributing the survey for clarification. Thank you for your participation.

1. Check the job title that best describes the position in which you are currently working (check only one):

___ Lead/Head teacher	___Assistant teacher	___Other: Please describe:

2. Check the status of your current position (check only one):

___ Full time (No less than 30 hours per week)	___ Part time (Less than 30 hours per week)	___ Other: Please describe:

3. Check the category that best describes the number of months currently attended by the children in your classroom (check only one):

___ Year round with some holidays and training days off	___ Part year that mostly follows the traditional school year (Approx. August through May)	Other: Please describe:

4. Check the category that best describes the program option currently attended by the children you are working with a majority of the day (check only one):

___ Full day (6 hours or more)	___ Double Sessions (AM & PM)	Other: Please describe:

5. Check the category that best describes your age on your last birthday:

___18-19 yrs. Old	___ 20-29 yrs. old	___ 30-39 yrs. old	___40-49 yrs. old	___50-59 yrs. old	___60-69 yrs. old	___70 yrs. or older

6. Check the highest level of education that you currently hold (do not include degrees or certificates you are working on). Please check only one, the highest level of education achieved at this time.

___ High School Degree or GED	___ CDA (Child Development certificate)
___ Associates degree in early childhood education	___ Associates degree in another field—List the title of your degree:
___ BS or BA in early childhood education	___ BS or BA in another field—List the title of your degree:
___ Masters degree in early childhood education	___ Masters degree in another field—List the title of your degree:

___ PhD or EdD in early childhood education	___ PhD, EdD in another field—List the title of your degree:

7. **List the year you received your highest degree (listed above). If not sure, estimate the approximate year: _____ (ex. 1988).**
8. **List the TOTAL number of years you have worked in Head Start. If not sure, estimate the number of years: _____ years.**

   If less than a year, list the number of months: _____ months
9. **List the TOTAL number of years you have worked in the field of early childhood education including Head Start. If not sure, estimate the number of years: _____ years. If less than one year, list the number of months: ____ months**

Thank you, you are now ready to begin the survey. There are two parts to the survey. The first will ask you how you feel about adopting/using EVIDENCE-BASED PRACTICES. **Evidence-based practices are defined as instructional practices that have been shown through the research to be effective.** Please answer each question as honestly as you can. **Check only one box that describes how you feel at this time.**

PART 1: EVIDENCE-BASED PRACTICES ATTITUDE SCALE - EBPAS
Created by Dr. Gregory Aarons (2004)
Adapted Version*

The following questions ask about your opinions about using new types of teaching strategies and methods. *Manualized teaching intervention refers to any intervention and/or teaching approach that has specific guidelines and/or components that are outlined in a book or manual and/or that are to be followed in a structured/predetermined way.*

Mark the box indicating the ***extent to which you agree*** **with each item using an "x". Only mark one box per statement.**

	Not at all	To a Slight Extent	To a Moderate Extent	To a Great Extent	To a Very Great Extent
1. I like to use new types of teaching strategies to help my students learn.					
2. I am willing to try new types of teaching strategies even if I have to follow a teaching/training manual.					
3. I know better than academic researchers how to care for my students.					
4. I am willing to use new and different types of teaching strategies developed by researchers.					
5. Research based teaching strategies are not useful in practice.					

6. Teaching experience is more important than using teaching strategies from a manual.					
7. I would not use manualized teaching strategies (see definition above)					
8. I would try a new teaching strategy even if it were very different than what I am used to doing.					
For questions 9-15: If you received training in a teaching strategy or method that was new to you, how likely would you be to adopt it if:					
9. It seemed appealing?					
10. It "made sense" to you?					
11. It was required by your supervisor?					
12. It was required by your Head Start program?					
13. It was required by the Office of Head Start?					
14. It was being used by a colleague (other teacher) who was happy with it?					
15. You felt you had enough training to use it correctly?					

PART 2: Head Start Classroom Assessment Scoring System CLASS (Pianta, La Paro, & Hamre, 2008) ATTITUDE SURVEY

Using the following scale, mark with an "x" the category that best describes how you feel about the CLASS at the current time:

	Extremely Uncomfortable	Uncomfortable	A Little Uncomfortable	A Little Comfortable	Comfortable	Extremely Comfortable
Mark the level of ***comfort you currently feel with the*** CLASS (Classroom Assessment Scoring System).						

The following questions ask about your feelings regarding the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008). Mark the box with an "x" that best describes the *extent to which you agree* with each of the items. *Only mark one box per statement*. Please read the categories carefully as they change.

	Strongly Disagree	Mostly Disagree	Disagree a Little	Agree a Little	Mostly Agree	Strongly Agree
2. CLASS accurately measures the ***quality*** of my classroom(s):						
3. CLASS has improved the ***quality of emotional support*** I provide my students:						
4. CLASS has improved the ***quality of my classroom organization*** *I provide my students:*						
5. CLASS has improved the **quality of *instructional support*** *I provide my students:*						
6. CLASS has helped me to ***become a better*** teacher/assistant teacher:						
7. CLASS has increased the ***frequency of interactions*** I have with children in my classroom(s):						

	Strongly Disagree	Mostly Disagree	Disagree a Little	Agree a Little	Mostly Agree	Strongly Agree
8. CLASS has increased the ***quality of my interactions*** with children in my classroom(s):						
9. CLASS has increased the ***amount of stress*** I feel as a classroom teacher/assistant teacher:						
10. If given the opportunity, I would ***choose not to use the CLASS:***						
11. I prefer to have a ***coach*** that is *not* my supervisor observe me using CLASS.						
12. I prefer to have ***my supervisor*** observe me using CLASS.						
13. I think it is important to *establish professional development goals* related to CLASS to improve my teaching.						

Now list your previous experiences with the CLASS.

14. Have you ever been observed by someone using the CLASS measure? ____ Yes ____ No ____ Not sure

15. Estimate the number of times you have been observed by a CLASS observer in the past 12 months: _____ times

16. Describe the *type of feedback you received after your most recent CLASS observation (s).* (Mark an "x" on all that apply):
Note that "class observation" includes a series of 2-4 observation sessions that count as 1 observation cycle.

a. ___ Received **no feedback**
b. ___ Received **general information** about the CLASS but not specific to my CLASS observation
c. ___ Received **suggestions of specific strategies to improve MY teaching** based on the CLASS observation
d. ___ Received **one time individualized coaching about MY** classroom interactions as related to the CLASS observation
e. ___ Received **one time coaching with my classroom teaching team about OUR** classroom interactions as related to the CLASS observation
f. ___ Received **ongoing (more than once), individualized coaching on MY** classroom interactions as it related to the my CLASS observation
g. ___ Received **ongoing (more than once), classroom team coaching on OUR** classroom interactions as related to our CLASS observation
h. ___ Received **feedback from my supervisor** about my CLASS observation(s)
i. ___ Received **feedback from a coach that was not my supervisor** about my CLASS observation(s)
j. ___ Received **feedback from a peer/colleague** about my CLASS observation(s)
k. ___ Identified **individual CLASS goals** to work on based on my CLASS observation(s)
l. ___ Identified **group CLASS goals** for my teaching team to work on based on my CLASS observation(s)

17. List the *types of CLASS TRAININGS, COACHING or SUPPORT* you have received *in the last 12 months* (Mark an "x" on all that apply).

a. ___ Received **CLASS TRAINING** in Emotional Support
b. ___ Received **CLASS TRAINING** in Classroom Organization
c. ___ Received **CLASS TRAINING** in Instructional Support
d. ___ Received **CLASS COACHING** in Emotional Support
e. ___ Received **CLASS COACHING** in Classroom Organization
f. ___ Received **CLASS COACHING** in Instructional Support

g. ___ Have been observed by a CLASS observer that provided **verbal feedback** following my observation
h. ___ Have been observed by a CLASS observer that provided **written feedback** following my observation
i. ___ Have been observed by a CLASS observer that provided **both verbal and written feedback** following my observation
j. ___ Have been observed by a CLASS observer that provided **no feedback** after my observation
k. ___ **Received my CLASS scores** after being observed
l. ___ **Did not receive my CLASS scores** after being observed
m. ___ **Received no CLASS support**

18. If you received feedback (either verbal or written feedback) following your CLASS observation(s), describe the type of feedback *most TYPICAL* of the FEEDBACK you received overall about your teaching performance based on the CLASS observation (Please choose only one, the one that best describes your overall experience):

___Extremely critical	**___Somewhat critical**	**___A little critical**	**___A little helpful / constructive**	**___Somewhat helpful /constructive**	**___ Extremely helpful /constructive**

19. Mark the approximate number of hours of *CLASS TRAINING* conducted in a large group you have received in the past 12 months (if not sure, estimate):

___ None	**___ 1-10 hours**	**___ 11-20 hours**	**___ 21-30 hours**	**___ More than 30 hours**

20. Mark the approximate number of hours of *CLASS COACHING* conducted individually or in a small group such as with your teaching team that you have received in the past 12 months (if not sure, estimate):

___ None	**___ 1-10 hours**	**___ 11-20 hours**	**___ 21-30 hours**	**___ More than 30 hours**

21. This question requires you to RANK some of the items listed. PLEASE RATE THE TOP THREE types of supports you would find most helpful to you in improving your interactions with children using the CLASS as a measure. Read all the supports and rate the one you would find most helpful as #1, the next most helpful #2 & the third most helpful as #3. Leave all others blank.

___ Provide me with reading materials that I can read on my own

___ Provide me with weekly time to review the CLASS video tapes in the domains/dimensions I choose

___ Provide me with opportunities to meet with other teachers/assistant teachers to learn about each CLASS dimension with time for me to practice implementing each dimension in-between meetings

___ Provide me with a coach that meets with me one-on-one to discuss specific teaching strategies to strengthen my performance in the CLASS dimensions I choose to work on

___ Provide CLASS in-service training(s) that includes information about how to implement each of the CLASS dimensions

___ Provide me with a written report after each set of CLASS observations listing what I did well, what I can improve on, and specific strategies for improvement

___ Provide opportunities for me to be video-taped implementing specific CLASS dimensions that I can view privately on my own

___ Provide opportunities for me to be video-taped implementing specific CLASS dimensions that I review and discuss with a CLASS coach

___ Provide opportunities for me to be video-taped implementing specific CLASS dimensions that I review and discuss with my supervisor

___ Provide opportunities for my supervisor to come into my classroom and DEMONSTRATE / MODEL for me, specific teaching strategies related to the CLASS dimensions so I can see it being done

___ Provide opportunities for a CLASS coach (not my supervisor) to come into my classroom and DEMONSTRATE / MODEL for me, specific teaching strategies related to the CLASS dimensions so I can see it being done

22. Please rate *how helpful you would find each of the following CLASS supports* in improving your interactions with children (Note: Even if you have not received these supports, rate the extent to which you would find them useful to you in improving your interactions). Please choose only one rating for each type of support listed:

	Not at all Helpful	Somewhat Unhelpful	A Little Unhelpful	A Little Helpful	Somewhat Helpful	Extremely Helpful
a. Provide me with ***CLASS READING MATERIALS*** that I can read on my own						
b. Weekly time to review ***CLASS VIDEO TAPES*** in the domains/dimensions of my choosing (I would have access to the CLASS video library)						
c. Provide me with ongoing scheduled meeting ***OPPORTUNITIES TO DISCUSS/DIALOGUE WITH MY PEER(S)*** about implementing specific CLASS dimensions with time for me to practice implementing in between meetings						
d. ***ONGOING ONE-ON-ONE COACHING*** about my CLASS observation(s) with specific suggestions on ways to strengthen my teaching in the CLASS dimensions of my choice						
e. Participate in group ***CLASS TRAINING(s)*** that provides me with information about how to implement the dimensions in each of the CLASS domains						
f. Receive a ***WRITTEN REPORT*** after each set of CLASS observations listing what I did well, what I can improve on, and specific strategies for improvement						
g. ***VIDEO TAPE*** of me implementing CLASS dimensions ***that I can review privately***						
h. ***VIDEO TAPE*** of me implementing CLASS dimensions that ***I review and discuss with a CLASS coach***						
I. My ***supervisor*** would visit my classroom and ***DEMONSTRATE / MODEL*** for me specific teaching strategies related to the CLASS dimensions so I can see it						

being done						
j. A ***CLASS coach (not my supervisor)*** would visit my classroom and ***DEMONSTRATE / MODEL*** for me, specific teaching strategies related to the CLASS dimensions so I can see it being done						

23. Please list any other CLASS supports that you would *find helpful* (Be as specific as possible):

_____

24. Of the supports listed or any you added, describe which of the supports *you think would most likely increase your CLASS scores*. NOTE: Include supports that you feel would be most effective in increasing CLASS scores even if they are not the most comfortable or desirable for you:

_____

25. Mark how *frequently you would like to receive CLASS observations*:

___Never	___Weekly	___Monthly	___Quarterly (every 3 months)	___Yearly	___Other (List)

26. Would you be willing to participate in follow up questions about professional development in a future study? Yes___ No___

Thank you for your willingness to participate in this important survey. Please place your survey in the envelope provided, seal it, and return it to the designated area in the room.

APPENDIX E

SCRIPT TO INTRODUCE PARTICIPANTS TO THE CAS

CLASS ATTITUDE SURVEY (CAS) SCRIPT
PI: TERESA M. OSTER
UNIVERSITY OF UTAH

PROCEDURE: Each Head Start teacher and teaching assistant will be provided an envelope with the survey inside. This envelope will later be used to seal the completed survey and/or a non-completed survey should an individual select not to participate so as not to draw attention to those that choose not to participate. Each survey will have a code on the survey that matches a card on the front of the envelope that includes the teacher's name. The card will be removed once the survey is handed to the teaching staff in the designated classroom, thus insuring the privacy of answers provided.

DIRECTIONS: Invite staff to collect envelope with their classroom name on an attached coding card. Check card name and number. Remove card at the point of staff collection to insure privacy.

1. Ask staff to refrain from opening survey until further instructions.
2. Once all staff are seated, use the following script:

SCRIPT:

Hello and thank you for the opportunity to be here. My name is _____. I am a researcher/research assistant here today to invite you to participate in an important survey about your attitudes towards adopting evidence-based practices and the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008).

Evidence-based practices are defined as instructional practices that have been shown through research to be effective.

Your input may help the field of early childhood education/special education in better understanding how Head Start teaching staff, view Evidence-based Practices and the CLASS as well as inform future professional development.

Your participation in this survey is optional. You can decide not to participate and if so, simply return the unanswered survey in the envelope provided. You may also decide not

to participate at any time during the completion of the survey. If you do choose to participate, I ask that you answer every question as honestly as you can.

Please rest assured that no one from your program will have access to your survey or know the answers you provided. Safeguards are in place to maintain your privacy and confidentiality at all times. Your answers will be combined with those of fellow Head Start teachers and assistant teachers in several different states. Many different safeguards are in place to insure that your answers will remain confidential. Each survey has been given a code that will be used for the purpose of compiling the research results. Please do not exchange your survey with another person because we will be looking at differences for example how teachers vs. assistant teachers responded to answers.

The survey will take approximately 20-25 minutes to complete. Feel free to move to the hallway or a more private area if you so choose, however note that all surveys will be collected in 30 minutes (give time).

Before you begin, let's open the packet and review a few of the questions. (Wait until all staff have their survey open in front of them).

- Most answers require you to put an "x." Please put the x in the center of the box.
- Please answer all questions.
- The first 9 questions ask about your education and experience. Let's look at question #3. Read aloud: "Check the category that best describes the number of months currently attended by the children in your classroom" The choices are "year round with some holidays/training days"- "Part year that mostly follows the traditional school year" and other. Which would best describe this program? Answer questions if needed.
- Now let's go to page 3. This survey looks at your attitudes towards adopting evidence-based practices. Again, you will only mark ONE X in the box that best describes the extent to which you agree (from "not at all" if you really disagree to "a very great extent" if you really agree). If you are unsure, make your best guess. Do not put your x on the line if you are having trouble deciding between one or the other, rather choose one and mark the x in the middle.

- In this survey it asks you if you would use "manualized teaching intervention"-the definition of Manualized teaching interventions any intervention or teaching tools that has specific scripts or guidelines that are outlined in a **book or manual/or** that are to be followed in a structured/predetermined way. An example of this might be Second Step, where you read from a script.

- Now let's turn to page 4. This section asks you to describe your experiences and attitudes towards the CLASS. Again, use one X in the center of the box to answer the questions.

- Read carefully as the wording as it changes, sometimes it asks how you feel; other

times it asks how effective or important something is so read the questions carefully.

- Let's look at page 8- question #21. This is a bit tricky because it asks you to rank order your *top three choices*. In other words, it asks you to decide which of these is the most important to you (that would be listed as #1); second most important you would write #2, etc. Please read all of the choices first…then you will only list a 1, 2, and 3. Some people find it easier to mark the important ones with a symbol (smile) and not so important with another symbol (frown) then go back through and decide from all the smiles, which comes first, second, third, etc. It makes it easier in keeping track of all the choices. Make sure that if you change your mind you scratch out the number thoroughly and write the new number next to it. Please print clearly. This is the only rank order question.

- At the very end it asks you to describe any other CLASS supports that you have found to be helpful that might not have been listed. Maybe you have figured out a system that works well for you. If you want to describe it, please be as specific as possible giving as much detail so the researcher understands your strategies.

- The very final question asks if you would be interested in participating in a future study. Note that we will not contact you individually, instead we will note which programs had a high level of response to this question.

FINAL INSTRUCTIONS:

- I ask that you remain quiet during the survey and do not discuss your answers with others so as not to influence others' answers.

- After you complete your survey, please place it back into the survey and seal it in the envelope to insure your privacy. Place the envelope on the table in front of the room (show). I will step to the back of the room/near the door to further insure your privacy, however should you have questions, feel free to come back to ask me.

- Do you have further questions?

Thank you in advance for your willingness, should you choose, to provide valuable information that will further the field of early childhood education/special education.

Pianta, R., La Paro, K., & Hamre, B. (2008). *Classroom assessment scoring system.* Baltimore, MD: Brookes.

APPENDIX F

UNIVERSITY INSTITUTIONAL REVIEW BOARD

CONSENT LETTER

An Examination of Head Start Teachers' Attitudes in Adopting Evidence-based Practices and the Classroom Assessment Scoring System (CLASS).

The purpose of this research study is to examine Head Start teachers and assistant teachers' attitudes towards implementation of evidence-based practices and the Classroom Assessment Scoring System (CLASS). I am doing this study to better understand the level of comfort Head Start teaching staff have in adopting evidence-based practices and the CLASS in hopes of guiding future professional development interventions that are responsive to staff needs and desires.

I would like to ask you to complete the enclosed survey and return it in the envelope provided. The risks of participating in this survey are minimal although some individuals may experience some discomfort in completing the survey. Benefits of participation in the survey include the opportunity to express your opinions about the use of the CLASS and desired professional development opportunities that may guide future supports for Head Start teachers.

Note that your survey responses will be kept highly confidential and your employer or supervisors will have no way of knowing your responses on the survey. In addition, the results of the survey will be written so that your anonymity will be preserved. You will not be asked to identify your name; however each survey will be coded for the purpose of completing the data analysis. The coded data will be kept on a password-protected computer and only those associated with the study will know the password. Upon completion of the study, all surveys will be kept in a locked and secured location.

If you have any questions or complaints or if you feel you have been harmed by this research please contact the primary investigator, Teresa M. Oster, Department of Special Education at the University of Utah. Phone: 435.655.1241

Contact the Institutional Review Board (IRB) if you have questions regarding your rights as a research participant. Also, contact the IRB if you have questions, complaints or

concerns, which you do not feel you can discuss with the investigator. The University of Utah IRB may be reached by phone at (801) 581-3655 or by e-mail at irb@hsc.utah.edu.

It should take approximately 15 minutes to complete the survey. Participation in this study is voluntary. You can choose not to take part. You can choose not to finish the survey or omit any question you prefer not to answer without penalty. Should you decide not to participate, simply place the survey back in the envelope and turn it in with the other surveys at the designated location in the training room.

By returning this survey, you are giving your consent to participate.

I sincerely thank you for your participation in this very important and timely research. Your feedback may prove helpful to other Head Start teaching staff throughout the country.

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